TRANSPORTATION

STRATEGY AND PROGRAMS

RECOMMENDATION FOR IMPLEMENTING THE TRANSPORTATION ELEMENT OF THE COMPREHENSIVE PLAN OF SAN FRANCISCO * PREPARED BY THE DEPARTMENT OF CITY PLANNING * * 1976

[APPROVED APRIL 21, 1977]

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Recommendations for Implementing the Transportation Element of the Comprehensive Plan of San Francisco Prepared by the Department of City Planning in Consultation with the Transportation Policy Group.

Approved by the San Francisco City Planning Commission by Resolution No. 7709 April 21, 1977

D REF 388.4042 T6876

Transportation, strategy and programs : 1974

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Prioritization of Programs

Each of the programs in this report were analyzed by a detailed set of criteria to determine relative importance over time. Those programs receiving a high priority ranking (indicated by three asterisks-***) can and should be implemented within the next two years. Middle priority programs (**) could be scheduled for implementation after two years, and lower priority programs (*), many of which are more conceptual at this time, might be implemented within five years.

The criteria were grouped into three general categories: implementation of general priority policy objectives, practicality of individual programs, and financial impact, i.e., cost to the City. Overall, policy implementation comprised fifty percent of the total score assigned to a program, practicality and financial impact each comprised twenty-five percent of the total score.

Policy implementation as a category consisted of five equally weighted specific criteria: emphasis on and improvement of transit, use of commuter auto disincentives, maintenance of the transportation system, improvement for pedestrians, and improvement of the environment.

Practicality as a category also included five equally weighted criteria: efficient use of existing resources, commonality of problem and appeal for solving it, relative citywide urgency of the problem, effective and satisfactory use of staff resources, and political feasibility of the program.

The category of financial impact was a single criteria, based solely on a strict projection of cost, after subtraction of committed, non-transferable federal funds.

INTRODUCTION

This report represents the program and strategy recommendations of the Department of City Planning for the maintenance and improvement of transportation facilities and service over the next three to five years. The broad policies underlying this transportation strategy have been set, in most instances, by the objectives and policies of the Plan for Transportation of the Comprehensive Plan of the City and County of San Francisco as adopted after extensive citizen and agency review in 1972. Where appropriate, the transportation strategy and programs are also drawn from the policy framework of the Regional Transportation Plan as adopted by the Metropolitan Transportation Commission.

Relationship to the Planning Process

The development and adoption of the Transportation element of the City's Comprehensive Plan was the first stage in the City Planning Department's plan development process. Transportation planning proceeds from the broad policy development stage through improvement planning, community planning and development programming to individual project implementation. The process of development at each stage not only contributes to the next but also results in reevaluation of previous stages. Input is received from the experience and needs of the operating departments and the needs and expressions of interest by citizens. The process is designed to further a relationship between adopted citywide objectives and policies and the individual public and private actions which together can realize those objectives and policies.

The Plan for Transportation included a description of improvements to be made to the transportation system within the next 15-20 years. Transportation programs are developed to serve as a bridge between the necessarily general nature of long-range planning policy and the specific nature of each transportation project.

Similar strategy and programs reports have been published previously for other Comprehensive Plan elements, including Residence and Recreation and Open Space. However, unlike the Residence element (community development-housing), there is no single block grant to be programmed. Transportation development programming is particularly complicated because of 1) the multiplicity of funding sources, 2) the multiplicity of agencies at each government level with interest and control in these funds, 3) the competition in demand among different jurisdictions for limited transportation funding resources, and 4) the multiplicity of implementing and operating agencies and departments.

Given this context and the existing policy framework, this programs report is designed to focus on what San Francisco can and should be doing in the area of transportation. These programs should be implemented within the next five years. Once implemented each program should be evaluated regularly as to its effectiveness.

Relationship to other Comprehensive Plan Goals

Transportation planning and implementation is undertaken in coordination with the objectives and policies of other elements of the Comprehensive Plan. Those objectives include the maintenance and improvement of the City's housing stock, open space, urban scale and texture and neighborhood environment. The proposed strategy is designed to link transportation facilities and services with these other City goals to maintain and improve the livability of San Francisco.

The Department of City Planning is currently involved in work on the Commerce and Industry element of the Comprehensive Plan, which will have additional implications for transportation in San Francisco and the Bay Area. The analyses and conclusions of that element and the pending adoption of public policy could have significant effects on transportation particularly to, from and within the Central Business District of San Francisco.

Format

Part One of this report summarizes the strategy considered most effective in achieving transportation objectives and implementing transportation policy, while meeting priority transportation needs and opportunities in San Francisco. Part One also describes the programs needed to implement these approaches. Part Two outlines the specific short-term action agenda to carry out this strategy. A companion report entitled Transportation: Conditions and Trends summarizes San Francisco's transportation resources, recent trends, and present programs.

Setting

The Plan for Transportation includes the fundamental assumption that a desirable living environment and a prosperous business environment cannot be maintained if traffic levels continue to increase without limits. Among the methods assumed by the Plan for controlling automobile traffic levels are: limiting the capacity of streets and highways, especially those entering the city; improving transit service; accepting congestion in certain circumstances, and confining major traffic movements to certain routes.

Another basic assumption is that transportation planning can be used to guide, shape and control growth, and that the City should assess the potential of growth on the basis of the ability of the transportation system to accommodate additional commuter travel and the impact on the quality of San Francisco's environment. The Plan assumes that all additions to the commuter load as a result of job growth in the City should be accommodated by public transit.

Among other assumptions of the Plan for Transportation are that public transit must be expanded to accommodate the demand for non-work trips, and that no radical change in transportation technology is expected during the next decade. Also assumed is that the Federal and State expenditures which have weighted transportation decisions at all levels of government too heavily in favor of automobile transportation in the past should now be allocated in such a way as to correct this imbalance.

Additionally, it is assumed that it is essential to conserve resources by making the best possible use of existing facilities, making the street system serve more functions, making the fullest use of the existing inventory of transit vehicles and encouraging private enterprise to supplement government action. Moreover, it assumed that it is important to assure that nonresidents coming to the city pay their fair share of the costs of transportation facilities including those provided by the City.

Finally, it is assumed that allocation of transportation functions by mode or facility among separate agencies within one level of government is becoming less useful, that more coordination is required and that reorganization and consolidation of transportation functions is desirable, along with coordination of transportation and land use planning.

These fundamental assumptions have been reflected subsequently in the Regional Transportation Plan and by many jurisdictions throughout the region, as well as in such recent improvement planning as the Golden Gate Corridor Study. The concepts have been carried forward on the State level by the electorate in certain referenda and more recently by some State officials and, to a lesser extent, on the national level by the U.S. Congress and some national administration officials.

Although the Plan for Transportation anticipated the need to conserve resources, it could not anticipate the extent of the energy shortage nor the general economic slowdown which have resulted in accelerating the demand for increased public transit and better coordination between transportation and land use planning.

There has been increased awareness of the external (to those using the system) effects of transportation decisions among the public at large. With this awareness has come a rejection of the historically narrow conception of planning for transportation "demand," a self-perpetuating cycle in which trends are extrapolated and equated with future demand, resulting in new facilities built in anticipation of such demand. Such facilities inevitably attract additional users, become saturated, and provide justification for still more expansion.

While the automobile has been credited in the past with providing greater personal freedom, there is now greater awareness that the automobile may have also produced an "enforced mobility." Post-war public policy has encouraged ever greater commute distances.

The Plan for Transportation assumed the obligation to meet the needs of all residents and visitors for safe, convenient and inexpensive travel, but a setting of short-range priorities indicates that it will not be possible for the transportation system to meet all such needs in the near future. An approach is in order which recognizes the need to preserve and improve the livability of San Francisco's neighborhoods and its downtown by efficiently utilizing limited resources.

PART ONE: BASIC TRANSPORTATION STRATEGY

The Strategy: Develop a transportation system as a means of maintaining and improving the livability of San Francisco.

The basic strategy proposed to be pursued over the next five years views the transportation system as an essential element in improving the quality of life within San Francisco, not merely as a means of increasing mobility. The intention is to use the transportation system to provide a more livable residential and business environment while preserving reasonable mobility.

Major components of this strategy are:

1. To continue to emphasize public transit and the Transit First policy as the primary means of meeting San Francisco's transportation needs.

2. To make more efficient use of San Francisco's transportation resources.

3. To take advantage of opportunities and to provide incentives for reducing the need to travel, and to discourage actions which would increase the distance between residence and employment.

4. To sustain San Francisco's role as the primary financial and administrative center for the region by improving its accessibility without adversely impacting the City's livability.

This strategy is proposed for several reasons:

1. It is necessary to restore balance to the transportation system. Between the end of World War II and the late 1960's virtually no capital expenditures were made to improve the Municipal Railway (Muni), while at the same time large sums of monies were expended to construct new roads--primarily freeways. The freeway revolt of the 1960's significantly reduced the amount of freeway construction in San Francisco, yet increased regional automobile accessibility has had great impact upon the city. Limited transportation funds available within the city have been spent to accommodate the increase in automobile traffic. The City has coped with increased automobile traffic without benefit of coordination according to locally-determined priorities for resident travel needs and the needs of commerce and industry for the movement of goods and services.

Even though the city has now made a clear decision to reinforce its transit system, there is still an imbalance of facilities. It will be several more years before all the new trolleys and other vehicles are on the streets and before Muni Metro is running. Moreover, of all the presently funded physical upgrading projects only the Muni Metro represents any increase in the capacity of transit, and then only in the existing streetcar service areas; rather the current upgrading program is limited to modernization of the old system.

2. There are increasing limitations on the funds available for transportation, and the most efficient and most travel-reducing solutions must be sought.

The general inflation this country has experienced the past several years has been most acute in the transportation area. Gasoline and automobile prices have taken significant leaps. The massive freeway building program for the country is rapidly reaching a point where only enough funds will be available to barely maintain and repair, let alone construct, new roads. The combination of increased fuel costs, labor demands and inflation has significantly increased the costs of mass transit at a time when substantial new and improved services are being demanded. Meanwhile the federal, state and regional budgets are under severe pressure at the same time as transit needs new subsidies.

All of these points illustrate the need for a more cost-efficient means of providing transportation, centering primarily on increased transit service and including carpooling, and an equally important beginning of a long-range program to reduce and adjust the need for travel. More efficient travel patterns, as well as the greater capacity of transit and more efficient use of both automobiles and transit vehicles, will make for more efficient use of financial resources.

3. Transit is a more efficient mode of transportation.

The financial and especially the fuel limitations on movement make it imperative that we utilize more efficient forms of transportation. Passenger automobiles consume about 14 percent of all the energy and about 31 percent of all the petroleum used in the United States. (By contrast, similarly prosperous European nations, such as Sweden and West Germany, use only a fraction as much energy for transportation purposes.) Capacity and fuel consumption make transit a more effective mode for travel especially for work trips. Further, less land need be removed from more productive and tax-lucrative purposes, as opposed to large freeways, parking structures, and other auto-oriented facilities.

San Francisco is fortunate in having an excellent transit facility in the Municipal Railway as a base from which to start. Any future growth in auto use must be limited and directed towards increasing average occupancy to three or more persons in carpools; and programs in this report are oriented towards more efficient modes of transportation.

4. Streets are an important urban resource and public asset.

Particularly in a confined geographical setting such as in San Francisco, limited street space must be used creatively to accommodate the multiplicity of urban needs. Streets are the primary urban land-bank, immediately available in all locations of the city to residents, shoppers, visitors and non-resident workers. While this report is concerned with the transportation uses of streets, the Urban Design Plan of San Francisco also has pointed out the other important functions of street space. The streets of San Francisco are too valuable a resource to be dominated primarily by low-occupancy automobile travel. Indeed, urban congestion dramatically reduces the speed and efficiency of the automobile itself. Our streets

must increasingly serve pedestrians and public transit and be designed and managed so as to minimize the conflict between the movement of goods and services and the movement of customers, employees and visitors.

The creative use of San Francisco streets involves two basic approaches: 1) a specialization of street functions such as in neighborhood plans where one of the intentions is to control through traffic on residential streets; the Transit Preferential Streets Program, wherein certain streets are designated for priority use by public transit, and the core area Automobile Control District, wherein certain streets may be designated for elimination of private automobile traffic altogether, and 2) an efficient use of limited street space where options for specialization are precluded.

5. It is essential that the momentum created by the Transit First policy be renewed.

San Francisco has recognized the need for a strong, official Transit First policy. However, decades of neglecting Muni cannot be erased in one or two years of effort, and lip service to transit goals cannot be substituted for hard work and sufficient funding.

The Transit Preferential Streets Program initiated as part of the Transit First policy has had a very slow implementation process, and the extensive rebuilding program of the Muni is still several years away from completion. Transportation efficiency, neighborhood strengthening, commercial area access and internal accessibility downtown, pollution, access to employment opportunities, and a host of other situations all point to increased need for transit.

The analysis of current conditions, problems and needs and the resulting development of this strategy is a process which will need to be repeated several times over the life of the current Transportation element of the Comprehensive Plan. However, there is also need for an ongoing process of relating proposed projects to the objectives of the Comprehensive Plan and to the available funding so that the operating agencies, the legislative body and the executive offices may have a clear idea of the purpose and priority of specific projects.

The program categories of the basic transportation strategy are grouped as follows:

Improvement of Citywide Livability

A. Expanding the Transit First policy

B. Maintaining the transportation system

C. Managing citywide parking

D. Developing recreational transportation

E. Improving transportation for those with special needs

F. Increasing the availability of transportation information

G. Improving transportation safety and security

H. Encouraging greater transportation coordination

Improvement of Neighborhood Livability

I. Designing residential streets to discourage through automobile and truck traffic

J. Improving crosstown and intra-neighborhood transportation

K. Providing for residential parking

L. Improving transportation to/from/within neighborhood shopping districts

M. Reducing pollution and noise impacts on neighborhoods

Improvement of Downtown Livability

N. Improving personal mobility and the pedestrian environment within downtown

O. Improving the waterfront environment

P. Improving travel patterns in commuter corridors

Q. Reducing the need for travel

IMPROVEMENT OF CITYWIDE LIVABILITY

The Citywide group of program categories is primarily concerned with the Transit First policy, transportation coordination, maintenance, information, parking, recreation, and special-need groups.

A. EXPANDING THE TRANSIT FIRST POLICY

Data in the Transportation: Conditions and Trends report reflect the already high transit ridership of San Franciscans, particularly for downtown work trips. Programs proposed here are designed to improve the speed and convenience of the transit ride and to increase the amount of transit ridership for all trips, work and non-work, downtown and crosstown. Thus, transportation and energy resources will be more efficiently used and congestion eased.

Transit First was adopted as an official City policy by the San Francisco Board of Supervisors in 1973. Muni has been working in harmony with other City departments to carry out this mandate. Many facets of Transit First are underway. In this time of scarce resources and excessive pollution, they all deserve to be strengthened and reaffirmed. The programs under this category all seek to expand this City policy.

1. Provision for Transit Vehicle Preference

a. Transit Preferential Streets Program***

As described in Transportation: Conditions and Trends, the Transit Preferential Streets Program as coordinated by City Planning has made a modest beginning in implementing the transit preferential street system. Work is in progress on a new plan for Mission Street and on the long-scheduled permanent improvements on Polk Street (construction imminent).

As part of the Municipal Railway's Planning, Operations and Marketing (P.O.M.) Study, an additional 25 miles of major transit streets are to be studied and implementation concepts recommended for transit preferential treatment. These concepts along with those for other streets remaining in the first phase of the program will be evaluated by an interdepartmental committee as to their respective priorities using available data and criteria which include net benefit for funds expended.

Muni is also seeking federal funds for implementation of the transit preferential street treatments recommended in the Northwest Corridor (NWX) study, as requested by the Board of Supervisors. A transit priority element will be included in the Muni's 1977-82 Five Year Plan. Additional transit preferential street treatments may be implemented as part of the Golden Gate Corridor improvements called for by that study's Board of Control, with funding through the Golden Gate Bridge, Highway and Transportation District.

The transit preferential program should also be examined with the intent of eliminating unnecessary delays in the process of implementation. The program should also investigate the potential for the greater use of signal preemption devices designed to favor transit vehicles, as well as potential changes in the downtown one-way street plan which may favor transit. The increased speed and convenience resulting from this program will provide improved transit service and more efficient use of our present transportation resources.

Recently promulgated transit efficiency requirements for UMTA Section 5 operating funds (which currently relieve the City's property tax transit subsidy by some $3.6 million annually) add emphasis to the importance of this program; these requirements stipulate that a transit operator must be pursuing Transportation System Management techniques, such as those in the Transit Preferential Streets program, to maximize efficient use of existing resources before qualifying for additional federal funds.

b. Muni-Metro Rights-of-Way**

Muni's new system is a combination of subway and surface routes. Three existing lines, the K, L, and M, will merge into trains at West Portal, and the N and J lines will merge into trains at Church and Duboce Streets for subway operation to the Embarcadero Station. Travel time on all the streetcar lines can be reduced significantly by construction of the new subway. The running of the Muni-Metro streetcars in trains in the subway portion depends upon schedules being met very precisely at the subway entrance. This factor amplifies the significance of giving streetcars preferential treatment on the surface portion of their routes.

A program is underway to develop Muni preferential rights-of-way for certain key surface portions, and improvements are in place on Judah Street from Ninth to Nineteenth Avenues. A design for the portion of Judah Street from Nineteenth Avenue to La Playa has been approved by the Board of Supervisors. Design of the West Portal area has been developed with merchants on that street, and a remaining key portion on inner Church Street between Market Street and Eighteenth Street has been discussed with neighborhood groups in that area. The process of designing this and other portions of Muni-Metro routes has brought to the forefront the significant need for and problems of dissemination of information and maintenance of communication with San Franciscans in any neighborhood or district.

Efforts should continue to develop and implement ways to insure transit preference on the surface portions of the J, K, L, M and N routes without causing undue inconvenience to residents. The means available include semi-exclusive rights-of-way for the Muni-Metro cars and restriction of left-hand turns across the railway tracks as well as other treatments, and each street must be studied separately in order to determine the most desirable and feasible methods to assure the attainment of transit preferential goals such as increased reliability. Since each streetcar line serves many neighborhoods and connects many major transfer points from Muni trolley and bus service, and since the details specific to each

street should be designed with neighborhood input, effort should be made to ensure that the interests of any one neighborhood group or special interest group do not seriously infringe on service to others along that line or on the rest of the system.

It is anticipated that even with progress on surface improvements to facilitate the new Muni Metro service, there will be inconveniences with which to contend as the changeover is made from the current streetcar system. All five routes will not be converted simultaneously, temporary bus service may substitute on routes while the new overhead wiring system is completed, and for a while some routes will be on and others under Market Street.

2. Completion of Present Muni Physical Upgrading Program

a. Physical Facilities Modernization***

Muni's four major capital facilities upgrading programs (TIP, PIP, TEP, SIP) described in Transportation: Conditions and Trends are aimed primarily at bringing the system up to date. The future improvement of the Muni depends to a significant extent on the upgrading of the present system. It will take several years for the physical upgrading to be completed. Having reached an acceptable baseline, the Muni can then look towards system expansion and improved service.

b. System Extensions and Links*

At least one extension to the existing system (in addition to the K and M line connections to the new Muni Metrocenter at Ocean/Geneva which are already programmed) should be implemented before the completion of Muni's improvement program -- a direct connection between the N-line and the Metrocenter. If possible, the J-line direct connection to the Metrocenter should also be made. Without the N-line connection, streetcars will have to travel from the outermost terminal of the route in the Sunset all the way in at least to Van Ness Avenue in order to get the cars back to the Metrocenter carbarn. A direct connection would also provide a safety factor in case there is a breakdown in the Sunset Tunnel, through which N-Judah streetcars must travel on the way to the Sunset district. It is imperative that a solution be found to this operational problem before the completion of the Muni-Metro system. Such a link should be considered in connection with Great Highway area improvements for the possibility of minimizing construction disruption and maximizing savings; other criteria should include the potential use of any link for revenue service. A J-line extension would also substantially reduce expensive deadhead mileage and would be used for revenue service so that the number of diesel buses using Chenery Street, which has been one of Muni's most consistent sources of operational complaints, could be reduced.

3. Development of Management Tools for Improving Service

a. Service Level Goals***

Physical upgrading is essential; yet it is not enough. New equipment will not serve the public properly without acceptable service level goals. It is recognized that along with improved facilities, the Muni needs a commensurate improvement in service.

Thus, as part of its P.O.M. study, Muni is investigating the setting of service level goals. A separate sub-program involves the setting and computerization of optimal scheduling.

Muni service levels are probably best expressed in terms of the accessibility of all parts of the City to the potential consumer of the transit service, a function of route spacing and coverage, vehicle speed, network orientation, headway reliability (performance information). The result of improved service levels should be increased patronage, transit modal split and income revenue. Indicators useful in evaluating success both in choosing appropriate goals and in attaining them might include fewer complaint letters and calls, improved vehicle cleanliness, fewer missed runs, fewer vehicle breakdowns, fewer vehicles out of service and improved patron safety.

The goals which are selected should be publicized, discussed and agreed upon both within Muni and among the public if they are to be most useful.

b. Muni Master Plan***

The Municipal Railway should further develop its in-house planning capacity and begin work on a long-range master plan for its activities. Once the physical upgrading presently in progress is completed, a long-range plan for maintenance of fleet and plant will be necessary. A Muni Master Plan should include broader goals for the organization, a clear articulation of the aims of the Muni, a public statement of what kinds of service the Muni should be providing, the resources needed to provide that service, and a physical facilities plan, detailing any new land requirements for Muni as well as resolving development and disposition of properties already under Muni control.

Muni's Transit Planning Section will soon begin development of a Municipal Railway 1977-82 Five Year Plan. This plan will encompass all the elements identified in addition to some others necessary to create a complete reference document for Muni's future development.

c. Muni Information Base***

Several of the projects in the P.O.M. study are necessary because Muni does not maintain significant information about itself, and the information which will be gained from P.O.M. will itself soon be obsolete without an ongoing mechanism for continually updating the data. Among the needed information should be ridership counts for individual routes of the system. The current lack of readily available data makes it difficult to gain a full understanding of the operational problems of Muni, detrimental to the planning of more efficient utilization of the system. Muni staff, in conjunction with a consulting firm, is developing a transit information management service (TIMS) which hopefully will give Muni management a program for maintaining and updating all available operational information. Better methods for data collection might also be tied at some point to innovative automatic fare collection or "enforced" honor fare systems (see program A5).

4. Increased Transit Service

Recent forecasts developed by the California Department of Transportation (CALTRANS) in preparation for the California Transportation Plan conclude that demand for public mass transit will triple by the year 2000. Some of the most dramatic percentage increases in demand may come during the next five years, and the planning for future transit growth should certainly be undertaken during that period. While it is difficult to contemplate increased transit service in the face of current maintenance problems (program B1) and in the face of budget decisions which force a reduction in service, some improvements can be made now and others planned so as to maximize opportunities for attracting additional revenue sources and avoid the perpetuation of transit crises.

a. Multi-Destination Service**

There are a number of ways to improve service. About 80 percent of Muni routes are oriented towards downtown, yet there is considerable need for increased crosstown and inter-neighborhood travel. Muni now captures 40-50 percent of the downtown market (approximately 40 percent of all internal trips in San Francisco have either an origin or destination downtown), but less than one-fifth of the non-downtown trips; clearly the greatest potential for an increase in the overall impact of the Municipal Railway on transportation patterns in the city lies in the improvement in the transit modal split for non-downtown trips, although an upgrading of downtown service is also to be desired.

Due to present financial constraints, the most efficient method for providing this increased service is by a careful examination and reorganization of present routes and schedules on the basis of origins and destinations of anticipated system users and with objective criteria available from the P.O.M. study. The introduction of new crosstown services

can only take place in the context of the development of a multi-destinational network that will make transit a realistic alternative for most journeys made within the city, and for principal corridor journeys across the City line.

One of the major transit needs is increased transit service to employment centers outside the downtown. Two areas with growing needs are the Northern Waterfront area and the outlying medical and educational institutional complexes. Both might be served by a combination of extending existing lines, implementation of new routes, and shuttle service. (See programs D1c, J2, O1) The major San Francisco employment center outside the downtown is San Francisco International Airport. Transit service to the Airport for workers should be improved as part of a solution to trunk-line transit service in the Peninsula corridor as a whole (program P1a).

b. Extended Service hours**

As staggered work hours, flex time and other such programs are developed, peak period service must be lengthened. The next five years should also see an increase in service on existing routes beyond the normal work hour peaks, particularly increased owl and other evening and late night service.

This applies to BART as well as to Muni. Twenty-hour daily and weekend service should be instituted on BART as soon as maintenance and safety requirements allow.

5. Expansion of Convenience Programs**

The Fastpass program initiated in 1975 has proven a tremendous success, with over 40,000 Fastpasses and over 5,000 senior passes being sold each month; this is now about 20 percent of total patronage. The pass is used as much for convenience as for cost savings.

There are a number of ways in which the program could be expanded. San Francisco could initiate a program where the Fastpass would be annual, deducted regularly from the paycheck, or employers might be induced to pay part of the cost as an alternative to the costs of providing parking. Similar programs have been instituted in Boston, Seattle and Pittsburgh. The aid of corporations and private organizations should be enlisted in the transit marketing effort. It is also possible that regular Fastpass subscribers could be billed through the Water Department, or in phone or power bills by arrangement with Pacific Telephone or P.G. & E.

Muni has also recently changed its transfer system so that transfers are valid for two hours on any vehicle at any location as long as the passenger continues in a forward direction. A continuing program to develop ridership should also include fare and transfer experiments.

Serious consideration should be given to a test of European-style "enforced" honor fare systems. This has considerable potential for speeding up operation by permitting loading at all doors and freeing the driver from involvement in all but a small number of payments.

B. MAINTAINING THE TRANSPORTATION SYSTEM

The public investment in existing transportation resources within San Francisco is extensive. It is essential that proper maintenance of transit, street and traffic facilities be accomplished. This will provide longer life, lower long-term costs and greater utilization of existing facilities. Maintenance in this context refers to all aspect of repair, rehabilitation, reconstruction and replacement. In addition to the programs below, maintenance and replacement of BART cars and control system must proceed until design service standards are achieved.

1. Development of Muni Preventive Maintenance***

Muni has been experiencing significant vehicle breakdown problems with its GM diesel buses, all of which were purchased at the same time and most of which have now reached the same critical advanced mileage simultaneously. This has resulted in a substantial number of delayed, shortened and missed runs, making reliability of service impossible and contributing to the irritation of drivers and the riding public. This has also resulted in the use of the new, lesser powered AMG diesel buses on routes they were not designed for, contributing to their early deterioration.

To a great extent the breakdown problem is the result of insufficient maintenance. Similarly, while it awaits delivery of the new Flyer electric trolley buses, Muni must continue to try to use the old electric trolleys, which also have not been maintained.

Neither the funds nor the spare parts nor the personnel necessary for adequate maintenance have been made available to Muni. Over the years the number of mechanics and shopmen has been reduced.

Muni has now developed a preventive maintenance plan, and it is essential that the funds and positions necessary be allocated in a reliable manner to assure high operating standards and prevent greater long-range costs. Vehicle maintenance records should be maintained so that the complete maintenance service record of any one vehicle is available to mechanics working on that vehicle. Each vehicle should be routinely checked and serviced to avoid breakdown. Proper maintenance will insure longer life, greater conservation of fuel and reduction of air and noise pollution, and a more cost efficient utilization of equipment.

Two actions which can assist in beginning a better maintenance program are: 1) installation of the TIMS program, and 2) provision at new Muni yards of herringbone-style parking, allowing assignment of drivers to specific vehicles and corresponding responsibility for awareness of maintenance on each vehicle.

2. Improved Maintenance of Streets and Traffic Hardware**

The 850 miles of streets within San Francisco are a prime transportation resource for both automobile and transit vehicle use and need continuous attention. Street condition, striping, special lanes, crosswalks, traffic indicators, bridges and roadway slopes all need continuous maintenance. The efficient and effective use of present resources such as streets, signals, signs and other traffic hardware is a prerequisite to the overall transportation program and should continue to be among the highest priorities within the Department of Public Works and in annual budget deliberations. A high priority for maintenance of transit streets would be extremely beneficial. The street maintenance program has been paid for traditionally by gas tax revenue; for FY 1976-77 no funds were allocated for street reconstruction.

Of particular concern is the continual shifting of salaries and other operating expenses into the city's capital budget, with the street maintenance program suffering most directly as the ever-increasing costs of street sweepers' salaries and the summer youth employment program, as well as other operating expenses, are drawn from the gas tax money available for capital street work.

3. Improved Maintenance of Street Related Facilities*

A significant aspect of improving the livability of San Francisco has been the tree planting and street landscaping program, although past budget cuts have impaired the maintenance of trees and landscaping. The city cannot presently afford to assume increased obligations for maintenance of new street trees in front of private properties where this maintenance responsibility can best be assumed by the private property owner. But the city must continue to maintain that for which it has assumed obligation in the past.

The sight of formerly landscaped islands filled with weeds is a sign of the deterioration of the city. Street landscaping and street furniture, such as on Mission Street, must include adequate maintenance, and replacement when necessary. Where appropriate, such as on Market Street, maintenance may be accomplished through the formulation of a special assessment district. But, the city must assume the obligation for the reliability of adequate funds for routine, continuous maintenance of the public's investment in the street landscaping throughout the city. Criteria for vandal-resistant materials, used in the design of Market Street and West Portal Avenue, should be employed in the design of all public outdoor facilities.

Proper street lighting can be important in enhancing city livability by increasing safety on thoroughfares, while reducing glare and intensity in residential neighborhoods. The largest obstacle to implementing these needed changes in the pattern of street lighting, as well as further goals outlined in the Urban Design Plan, is the coordination of purchasing

and storage of new fixtures among the responsible City agencies. A program to accomplish this end might also include the legislating of lighting standards which could take into account urban design and energy conservation goals.

C. MANAGING CITYWIDE PARKING***

The Plan for Transportation noted the need for expansion of its own parking plan when more information was available regarding parking supply and demand. That information has now been generated under the Parking in San Francisco (December 1975) study. The study is expected to lead to new citywide parking policies in harmony with the basic strategy of this report, the Transit First policy, and energy conservation standards.

The recently completed study was a joint task of the Departments of City Planning and Public Works, under contract to the Metropolitan Transportation Commission.

The completed parking study includes an inventory of existing parking facilities by type, location and capacity, an analysis of trends and projection for the rate of growth in new parking spaces, criteria and a process for evaluating new parking facilities. The report addresses such subjects as the better utilization of existing parking spaces, parking as a "temporary" land use, the effect of recent and projected growth in development and parking downtown, the parking rate and tax structure, the changes which the adoption of parking management goals might have on transit, and the potential for peripheral parking facilities.

It is intended that the findings of the study report lead to amendments to the Plan for Transportation and, where appropriate, amendments to the City Planning Code, as well as provide guidance for new legislation concerning other aspects of parking in San Francisco. The parking portions of the Plan for Transportation as amended will determine how the City can best handle the future demand for parking while preserving the quality of the City's environment and will suggest programs to that end.

D. DEVELOPING RECREATIONAL TRANSPORTATION

Providing recreational routes and greater recreational transit within San Francisco and to nearby regional recreational areas serves to enhance a number of goals. Increased access to recreation increases the livability of the City. The availability of recreation via transit is particularly important to the transit dependent. By emphasizing local recreational facilities and providing transit as well as auto access, the need for extensive travel to more distant recreation areas can be reduced, also reducing energy consumption and air pollution.

The importance of the recreational use of transit cannot be underestimated. Weekend traffic flows on routes leading to and from major regional recreational areas, such as in the Golden Gate-Marin corridor, now exceed daily commuter peaks in congestion and duration.

1. Increased Access to Recreation Areas

a. Golden Gate National Recreation Area***

A major study of recreation travel is now being undertaken under the auspices of the Golden Gate National Recreation Area. It is primarily exploring ways of improving public access, particularly by public transit and particularly for low-mobility and low-income groups, to GGNRA. Of course, much depends on the nature of plans for the park itself, its uses, levels, and locations of desirable intensity. Park plans and transportation access plans are expected to be coordinated during the next two years. Meanwhile, transportation improvements will be tested, such as the new Golden Gate Transit routes described in Transportation: Conditions and Trends.

b. Shoreline State Park*

Development of the new Shoreline (South Bayshore) State Park involves the total transformation of an industrial area. The provision of park access should be carefully coordinated with other transportation needs of the South Bayshore area to avoid duplication of effort and expense and to produce one multi-purpose roadway with maximum public benefit. A well-designed facility should serve to correct some of the environmentally degrading effects of traffic currently suffered by residents of this area. Among the other recreational purposes of such an access roadway can be provision of better access to Candlestick Park, removing some of the traffic which now uses residential streets.

c. Northern Waterfront**

The transportation needs of San Francisco's waterfront are more extensive than recreation use alone. Well-designed transportation facilities can serve a multitude of needs. For example, increased transit can serve the growing employment and residential center in the Northern Waterfront and waterfront recreation. And such transit service can also help relieve the congestion caused by visitors.

Better connections between the North Bay ferries, BART and the downtown core should also be made via feeder service operated by Muni or Golden Gate Transit. The capacity of existing parking facilities could be utilized on weekends, if the connections between the roadways leading to them and transit are made. The transformation of the surface Embarcadero roadway from an industrial roadway into a landscaped boulevard, including sidewalks and a

bikeway as well as a segregated right-of-way for transit, would significantly improve access to waterfront recreation. Narrowing of The Embarcadero and the addition of sidewalks are particularly important for pedestrian access to the waterfront.

In addition to service improvements needed for other reasons in the Northern Waterfront, transit should capture a larger percentage of the travel needs to commercial-entertainment centers, such as Fisherman's Wharf, Ghirardelli Square and North Beach. Most of these improvements can serve residential, employment and recreational needs. Increased service on existing routes (Muni Route Nos. 15, 19, 30, 32, 42), extensions of service from existing lines, special connecting service (to Golden Gate ferry boats), or new lines (future waterfront rail service) are discussed elsewhere in this report.

2. Recreational Streets and Transit Use

a. Recreational Streets*

A prime candidate for special recreational street treatment is the Great Highway. Although Great Highway has been reduced to two lanes and the speed limit lowered as a safety measure, there are recent indications that the average speed has stayed the same. A plan for a curving realignment of the road approved by a committee of the Board of Supervisors has never been implemented. The plan calls for narrowing the Upper Great Highway roadway, realigned to be gently curving with a median of variable width and new parking areas on the beach side.

Both the North Central Region and entire State Coastal Plan emphasize the retention of coastal roads for recreational, non-through traffic. As the Great Highway primarily serves Ocean Beach, now part of the Golden Gate National Recreation Area, it would be appropriate for federal, state and regional agencies to assume financial responsibility for maintenance of the road and its development for recreational purposes during the next five years. However, the planned sewer project in the Great Highway area also offers the potential for completion of at least part of the roadway development in the near future.

b. Muni Recreational Routes*

Mention has been made of the need for increased and/or new Muni service to some specific recreational areas. Weekend service on Muni routes should be upgraded, particularly that service linking high recreational need neighborhoods in the southern and eastern portions of the city with major recreational facilities, such as Golden Gate Park. The Muni Five Year Plan will include a recreational transit element that will insure full access to recreational areas from all parts of the City.

Concern for recreational and visitor transit can have positive benefits for other resident needs. A particular need is to relieve the overcrowded cable car system. Short-term relief could come from operation of auxiliary tourist-season bus service, routed through at least the major areas of the neighborhoods now only served by the cable car, and some relief could come from the visitor program in this report. Planning should begin for longer-range improvements such as the possible extension of the California Street cable car northward along Polk Street to the waterfront and/or an Embarcadero rail line operated in such a manner as to serve residents and attract visitors.

3. Improved Marketing of Recreational Transit

Innovative techniques can contribute to improved livability in the City for visitors and residents. Programs to encourage greater use of public transit instead of automobiles could lessen some of the more adverse impacts of tourism. Some of the techniques that might be employed are described below.

a. Sundays and special events*.

Better promotion and expansion of Muni's Sunday pass service, useful in all directions on all routes, if combined with more frequent service and some route realignment, could increase the attractiveness of transit. Muni has been quite successful in attracting people to transit for special events, such as Candlestick Park games or the Opera. Similar transit service should be considered to all mass-attendance events, including events at Candlestick Park, the Cow Palace and Kezar, at the Palace of Fine Arts (particularly during the Film Festival), at the Civic Auditorium or elsewhere in Civic Center, at Golden Gate Park, McLaren Park and the Golden Gate National Recreation Area; some return in Muni operating costs and all costs for promotion of such services could be included in the rental contracts for use of these facilities when appropriate. Coordination for such special service might be assigned to one or more of the following: Muni, Department of Real Estate, Department of Recreation and Parks, Convention and Visitors Bureau.

b. Visitor-Tourist Transit**

The City's advertising which first attracts tourists and conventioneers to the City can sell them on the idea that public transit -- from cable car to BART -- is all part of the attraction. Advertising can extoll the virtues of visiting San Francisco while leaving one's car at home.

One important incentive might be a Visitor's "Fastpass" -- good for one week's unlimited transit. All visitor information packets which are distributed on behalf of the City should include a good transit map and fare information. All City departments that are involved in transportation should work with the Convention and Visitors Bureau in developing

good transit information for visitors to San Francisco. Simple route maps included in brochures given to tourists could encourage more use of transit.

4. Improved Bicycle Facilities*

Improvements in the City's bicycle route system are needed for safety and convenience on several existing bike paths, and significant gaps in the bicycle path network should be closed during the next three to five years. Planning for a separated bikeway in the new Embarcadero roadway and for bicycle routes and facilities in the Golden Gate National Recreation Area should continue and improvements made as possible.

E. IMPROVING TRANSPORTATION FOR THOSE WITH SPECIAL NEEDS

Despite all the specialized vehicles and services cited in Transportation: Conditions and Trends, segments of the urban population are being left out, provided with inadequate, inconvenient and too expensive choices which inhibit their mobility and, as a result, their ability to function as part of urban society. These include those with language barriers, the unemployed, the poor, the young, the old, the mentally handicapped, and, of course, the physically handicapped, and they also include those with immediate but temporary needs, such as shoppers with large parcels and women in pregnancy.

The problems caused by the widely divergent needs of such people call for diverse solutions. In some instances these specialized needs can be met by the existing public transit systems, in some cases these needs call for expansion of exisiting systems into special programs and facilities beyond the more conventional scheduled bus and rail transit, and in some cases these needs are beyond the service abilities of the existing public transit systems altogether. In some cases, too, only the most minor of service improvements can or should be made by the city acting alone, and extensive cooperation, initiative and funding is required of the private sector and regional, state and federal government levels. At the same time, some solutions to special needs problems raise equity questions.

1. Service Alternatives for Transit Dysfunctional Handicapped***

While innovative approaches toward providing full mobility for the elderly and handicapped are being addressed in various parts of the country by new systems, techniques, equipment and governmental regulations, little is currently known about the transportation needs of San Francisco's own elderly and handicapped residents.

The wide range of impairments - visual, auditory, functional - makes any one transportation solution unlikely. Several cities throughout the U.S. and Canada, with the cooperation of their transit systems and members of the handicapped public, are successfully providing special transit services and facilities for the handicapped. Federal regulations provide that any new facilities including stations and standard transit equipment designed to serve the general public, constructed or altered in the future are to be made accessible to the maximum extent feasible for elderly and handicapped persons. But the federal Urban Mass Transit Administration recently undermined efforts to provide more accessible vehicles by dropping its previous insistence on very low vehicle floors (see program M4). Buses which will provide somewhat lower floors under the new relaxed standards and which offer wheelchair lift options are expected to be available from manufacturers in 12-18 months.

Some barrier-free buses are already in operation, and are about 30 percent more expensive than conventional buses. FMC Corporation of San Jose manufactures a totally accessible bus, 12 of which are currently used by the City of Denver (using entirely local funds) with routes set on the basis of need. Priority is given to handicapped subscribers for work and school trips during peak hours, and the buses are assigned to elderly citizens for shopping trips during off-peak hours. Specialized vehicles and services are in operation in many cities, including Ann Arbor, Minneapolis, Milwaulkee, Syracuse, and Edmonton, Canada, as well as in Santa Clara and Marin Counties. In Topeka, Kansas, and throughout the state of Iowa, such specialized vehicles and services are also available for use by non-handicapped persons. Several major health and social service agencies in San Francisco currently provide special transit services, and several of these are now provided with public funds through MTC. The need here is for coordination of services and sharing of operational know-how and costs as well as maintenance facilities.

Another possible use of such specialized vehicles, operated either by public or private agencies, is for feeder service to main conventional rapid transit lines with convenient transfer locations. A study cited in Transportation: Conditions and Trends is examining the design feasibility of specialized on-street access facilities at stop locations of a Muni Metro line.

The correct means must be devised to provide transportation access to life-support facilities for San Francisco's elderly and handicapped at a cost in line with the benefits. To do so, a study should be undertaken to find out who the handicapped are, and what their transportation needs are, and to examine the various service alternatives. Such a study might be conducted by the new special San Francisco Public Utilities Commission Subcommittee on Handicapped and Elderly Accessibility and should call upon the knowledge and experience of such interest groups and agencies as the San Francisco Commission on the Aging, the Committee for the Removal of Architectural Barriers, the California League for the Handicapped, American Foundation for the Blind, American Association of Retired Persons, California Association for Older Americans, the Easter Seal

Society, National Federation of the Blind, North of Market Senior Center and other senior centers, and the San Francisco Board of Supervisors Citizen Advisory Panel on Transit Improvement. The study should also begin to identify possible funding sources for implementation of the various alternatives in San Francisco.

In addition to transit services, implementation should proceed on street improvements for the physically handicapped, including wheelchair ramps at intersection curbs and provision of "blue zone" parking for cars with special license plates, driven or owned by the handicapped, at specific locations, as mandated by recent State and City actions.

2. Development of Para-transit[1] Options

In San Francisco para-transit can supplement existing Muni service. One important application may be in meeting some of the needs of the physically handicapped as mentioned, but jitney, dial-a-ride, taxis or subscription bus service can also provide services for special education and shoppers, for short trips within the denser parts of the city or for feeder service to the new Muni Metro and from extremely hilly areas. Some of this service may be too expensive for the Muni system itself to provide and yet may be profit-making for private firms. Some travel needs can be met more cheaply and efficiently by para-transit services than by conventional transit. A program to study the various paratransit options described below should recommend how and where each option might be applied.

a. Special bus**

Subscription bus service appears to be an easily applicable form of para-transit for use in San Francisco. The University of California Medical Center has experimented with special buses to pick up staff and students at several locations and bring them to the campus. The Golden Gate Bridge, Highway and Transportation District helps to organize and subsidize a number of "Commute Clubs" in that corridor. And Union Street merchants, through Delancey Street Foundation, have proposed to provide a type of hail-a-ride service between Union Square and Union Street.

b. Jitneys*

San Francisco's jitney service currently fills two valuable para-transit needs: 1) supplementary (to conventional transit) service in a particularly high density corridor (Mission Street), and 2) shuttle service to and from regional trunkline commuter service (Southern Pacific), also supplementary to conventional transit.

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1. Paratransit refers to all non-conventional transit, i.e. that which does not consist of buses and rail cars on fixed routes and set schedules. Paratransit includes car and vanpools, rental cars, bus service on a subscription basis, taxi cab and related service such as dial-a-ride, jitney, and limousine.

There are additional applications for jitney service supplementary to Muni or where Muni operating costs would be prohibitive. One of these might be shuttle service within the downtown core; another might be intra-neighborhood shopping center service.

c. Taxis*

An untapped transit resource is the taxicab. Taxicab fares in San Francisco have climbed steadily to the point where taxicabs may be providing their specialized services only for the rich. Controls on the number of taxicabs and limitations on the services taxicabs may provide appear to deprive the public of useful transportation services. Expanded taxicab service could concentrate on providing higher-occupancy services, such as dial-a-ride or jitney, and a more flexible fare system which reflects variations in the costs of services provided -- lower per passenger for dial-a-ride and jitney, higher for all services during rush hours than during off-peak.

Specially equipped and subsidized taxis in Phoenix currently provide service for those who cannot climb into regular vehicles because of physical handicaps.

3. Service Alternatives for Economically Disadvantaged*

The concept of "transit stamps" for the economically disadvantaged has been discussed for several years nationally and regionally. The Muni Fastpass program now offers a real opportunity to put that concept into action. State unemployment, welfare and other social service agencies should explore the feasibility of subsidizing transportation for the unemployed and poor through the purchase and distribution of Fastpasses or through subsidies to Muni to provide discounted passes for those eligible. The BART ticketing system would allow for similar State subsidy or transit stamp program commencing in the near future.

F. INCREASING THE AVAILABILITY OF TRANSPORTATION INFORMATION

A substantial portion of San Francisco's population at any given time includes visitors, residents newly settled in the area, those on business and shopping trips, City jobholders who live elsewhere, and others who are unfamiliar with the City and its transportation system. For these people especially it is important that transportation information be available and easily understood. But even for long-term residents, maximum use of all the City has to offer requires good transportation information.

1. Provision of Better On-Street Information

Better information for both auto drivers and transit riders can have positive side-benefits for city livability. Proper roadway signing can help divert through traffic from residential areas, transit or pedestrian-oriented streets, and parks and open space. A general reduction in the confusion caused by lack of good information can have immediate benefits in improved safety and long-range benefits in a general reduction of urban frustration.

a. Streets*

Street signing should provide information for those most unfamiliar with the street system. Signing on routes leading into San Francisco should channel drivers directly to their destination via the route most desirable from the City's livability objective. Those destined for the downtown core or parts of the Northern Waterfront area should be directed to peripheral parking facilities. Drivers in San Francisco with destinations outside the city should be directed to the closest freeway ramp via non-residential and non-downtown-core streets.

In clearly designating essential transportation information on the street, such as street names, transit stops, public parking facilities, and location of telephones, the purpose of on-street information should be to simplify the transportation system for users. This signing should be accompanied by a reduction in visual clutter from excessive and inconsistent public and private signing.

b. Muni**

Muni's current efforts to improve on-street transit information include bus shelters with maps and route information, and new transit stop signing with route information. When the Polk Street and Mission Street transit preferential treatments are completed, these streets will be the first to have new signs.

Transit stop locations also should include information on the nature of vehicles that run on that route, headways, and hours of operation. In addition to the detailed information on the signs themselves, universal application of the new Muni colors and logo could provide instant identification for bus stop locations, particularly welcome for transit users at night and in unfamiliar neighborhoods. These new signs should be installed as soon as possible.

In addition to the current bus shelter program, transit information could be provided through "transit centers". These centers, placed at major transfer locations, well-lit and attractively landscaped, could provide a major source of information on the entire transit system, including an easily readable citywide transit map, with major points of interest identified. The centers should be named in a fashion that identifies

them readily to transit riders. A transit centers program should begin by seeking funding for the creation of such centers in a systematic manner.

2. On-board and Other Transit Information**

Muni has recently expanded and improved its telephone information system, and all vehicles will soon bear the Muni information telephone number displayed prominently. Public information should also include radio announcements to inform the public about possible delays or temporary diversions from normal routes.

Some new marketing concepts are expected from Muni's Planning, Operations and Marketing Study. For a transit system, reliable information on routes, services available and schedules can be among the more important marketing tools. Unused card space on vehicles themselves can be used for dissemination of information. Merchants near bus stops could be requested to post transit information; in return, buses could post directories of businesses on their routes.

Early promotion of the Fastpass program was in large part responsible for its immediate success. While this program has been growing steadily, it is no longer as easy to find up-to-date information on where to purchase the Fastpass. Similarly, Muni's excellent Sunday pass feature is almost unheard of, and relatively unused.

Recognizing that the market for transit riders in San Francisco includes a large number of people for whom English is a second language, the P.O.M. study has published information and survey questionnaires in Spanish and Chinese. This practice should continue in the promulgation of Muni transit information. Access to bilingual operators for those seeking Muni telephone information should be relatively easy.

Easily-readable transit route maps can be very important toward understanding the transit system and making it useful for both residents and visitors. Such maps must be graphically well-designed, with color used to differentiate significant aspects of the transit system and with a minimum of visual clutter, and should be distributed along with concise, non-confusing schedules.

G. IMPROVING TRANSPORTATION SAFETY AND SECURITY

1. Provision of Traffic Signals and Channelization**

The Department of Public Works currently keeps traffic counts and data on all reported accidents involving vehicles and pedestrians. DPW uses this data, plus requests from citizens or other city departments, to identify problem intersections and streets and to design solutions. Usually the solutions involve traffic signs or signal changes or

installation, or channelization of vehicles into a traffic flow pattern that mitigates the problem. This ongoing program should follow city policies which call for protection of residential neighborhoods from through traffic, resolution of traffic conflicts in favor of pedestrians and transit vehicles and design of streets for a level of traffic that is not detrimental to adjacent land uses.

2. Improved Transit Security*

According to preliminary findings of Muni's P.O.M. surveys, security for transit riders is considered to be a very important and immediately pressing problem. Needs include increased security patrols on vehicles and at curb stops and closer police surveillance. New vehicles ordered in the future should also be equipped with silent alarms connected directly into police communications systems.

H. ENCOURAGING GREATER TRANSPORTATION COORDINATION

On the local level, continued and expanded coordination among transportation planning and operating agencies and the executive and legislative offices could help to assure more efficient, more responsive transportation service within San Francisco and better representation of San Francisco's interests on the regional, state and federal levels. On the regional level, increased coordination among the several transit systems operating in San Francisco can help provide better, less expensive public transit service for San Franciscans and other Bay Area residents.

1. Improved Regional Coordination

a. Fares and Transfers**

Since San Francisco is a major transfer location as well as a terminal for work and other trips involving intra-regional transfers, and since San Franciscans currently bear a disproportionate share of the costs of regional transit, it is logical for San Francisco to be actively involved in improving and simplifying the fare and transfer process among Muni, BART, AC Transit, Golden Gate Transit, Greyhound, Southern Pacific and San Mateo Transit. While BART has made half-fare transfer arrangements with Muni and AC Transit, there are no present fare and transfer agreements among other operators. Every trip utilizing two or more operators still requires multiple fares and expensive transfer costs.

Customer convenience suggests a single-fare trip, no matter the number of operators. A major stumbling block is the revenue loss that would be incurred. A rough estimate of the total revenue loss from free inter-operator transfers in the region is $10 million annually; a fund source to cover this loss must be found before such an extensive program could be initiated.

A less expensive program might be the issuance of inter-operator passes, similar to the Muni Fastpass, for those people regularly using two or more operators in their daily trips. The collection of fares beforehand would help to reduce the annoyance associated with multiple exact fares, and the revenues could be divided either by formula or by patronage counts. A two-system pass based on a combination of the Muni Fastpass and the Southern Pacific Peninsula monthly ticket could be useful in helping to stimulate growth in S.P. patronage.

b. Information and Advertising**

Another problem commonly encountered by travelers is a lack of central information about intra-regional transit. For instance, to obtain information concerning travel from Santa Rosa to San Jose now necessitates calls to Golden Gate Transit, Muni, and Southern Pacific Railroad. It would seem worthwhile to have a central, regional information source that could provide information on a number of operators. In addition to cooperative arrangements on fares and transfers, there are a number of other areas requiring coordination. Some examples are a common information source, better coordination of routes and schedules, publication of all-encompassing route and schedule information, and common standards for a variety of items (handicapped definitions, street signing, etc.).

The major operators in the region have for the past several years been discussing the formation of a Transit Association, as a forum for studying and implementing coordinative activities. However, the necessity of such coordination has not yet been made clear to all the political entities involved in the venture. City policy should encourage this organization and greater coordinative activities in general.

Transit advertising should also be coordinated. Instead of different operators advertising their own transit service, a combined advertising budget could be developed to promote public transit in general throughout the region.

2. Improved Citywide Coordination

a. City Transportation Budgeting**

The budgetary process now used by the City does not outline where monies are going, what objectives proposed projects will achieve, or what choices are possible. In an effort to improve the process, the Transportation Policy Group (Department of City Planning, Department of Public Works, Public Utilities Commission) has adopted a set of policy criteria for evaluating each proposed project in the capital budget and a format for presenting these criteria. Additionally, the interdepartmental committee which develops the funding program for expenditure of Federal Aid to Urban (FAU) system funds has used these criteria. Work should continue

on this process until all projects proceed from such a policy criteria basis. All decisions on funding made by the City should be based upon an awareness of the policy implications as well as upon a conception of the overall transportation strategy.

Recent efforts at coordination of new funding procedures, such as with FAU funds and Article XXVI (Proposition 5) funds, have pointed out some of the confusion within transportation financing. Dwindling City and State funds for transportation and diversion of former transportation capital improvement monies (gas tax) to other purposes have compounded the transportation financing problem. Efforts to implement the transportation strategy and programs in this report will involve closely coordinated scrutiny of transportation financing and the preparation of a unified transportation budget.

Coordinated transportation budgeting at the City level will help insure San Francisco's interests before regional and state transportation planning agencies - MTC and Caltrans - both of which are responsible for the distribution of funds. Concentrated effort must be made to assure San Francisco its fair share of regional and state funding, commensurate with San Francisco's substantial local financial commitment for transportation, particularly transit services. San Francisco will continue to bear a disproportionate burden of providing regional transit facilities and services until such time as the regional level of support for transit equals the San Francisco standard.

b. San Francisco Department of Transportation**

The introduction of this report discussed the complexity of transportation due to the multitude of operating and planning agencies, and of funding and political cross-responsibilities. Efforts have been made by the Department of City Planning, the Department of Public Works and the Public Utilities Commission to bring about a more coordinated City approach to transportation problems through the Transportation Policy Group. However, the challenges of increased congestion, air pollution, energy depletion and financial deficits call for re-evaluation of a more comprehensive city approach to transportation.

San Francisco requires the best possible, most efficient and effective local transportation agency. In the last four years the State of California has created a California Department of Transportation, absorbing the duties and responsibilities of the former Division of Highways as well as transit, airport and seaport functions. On the regional level, the Metropolitan Transportation Commission was created to respond to transportation problems comprehensively. At the federal level the Department of Transportation has existed for a number of years. The needs which brought about this particular type of organizational structure on three different government levels -- with one agency responsible for all activities in the entire subject area of transportation -- are apparent at the local level

in San Francisco.

Although the administrative difficulties are formidable, San Francisco should create a San Francisco Department of Transportation.

IMPROVEMENT OF NEIGHBORHOOD LIVABILITY

All elements of the Comprehensive Plan include policies to protect, maintain and strengthen the neighborhood areas of the City. San Francisco's neighborhoods increasingly have been troubled by congestion, pollution, non-resident parking and lack of adequate mass transit. Defining and linking neighborhoods, providing more efficient transit for cross-town and non-work trips, channeling through traffic onto major thoroughfares and off neighborhood streets, and diminishing pollution are all vital goals for transportation programs designed to maintain and improve the livability of San Francisco neighborhoods.

I. DESIGNING RESIDENTIAL STREETS TO DISCOURAGE THROUGH AUTOMOBILE AND TRUCK TRAFFIC

1. Neighborhood Traffic Management Programs**

Projects in different parts of the City have sought to maintain the livability of residential neighborhoods by design methods which couple methods to discourage heavy traffic with beautification amenities. One of the major criteria of the Protected Residential Area (PRA) program, to divert through automobile and truck traffic away from residential streets and onto non-residential major throughfares where er possible, has met with extremely diverse reactions in different parts of the City. The program can include increased landscaping and visual identity, additional open space, additional residential parking, and pleasant transit stops, and a description of the program is detailed in Transportation: Conditions and Trends.

Residents of the Inner Mission (Bryant-Harrison) PRA have extolled the virtues of their plan and sought its extension even as residents of the Inner Richmond had construction stopped on their neighborhood plan. Unexpectedly, where traffic control plans have been implemented, as on Telegraph Hill, without design amenities, they have often been least controversial. The Department of Public Works has planned and implemented several neighborhood traffic control plans, using primarily stop signs, at the request of neighborhood groups. Experience has also indicated a preference for smaller scale, scattered measures, such as a center-intersection island in the Excelsior district, which nevertheless are consistent with an overall plan of traffic movement. This has led to a reassessment of the PRA program. One of the significant modifications in the future, depending on neighborhood request and response, will be the simultaneous installation but separation in design of traffic control and beautification measures. Planning and implementation of the Folsom Street PRA should proceed at the request of that neighborhood, and other neighborhood traffic management plans should be undertaken at the requests of neighborhoods, benefitting from mistakes of the past. A test installation of each new proposal should be

made to assess efficiency and public reaction before contract funds are expended.

2. Diversion of Truck Traffic and Creation of Truck Routes

Various areas of the City suffer from excessive truck traffic. Providing for the adequate movement of goods will involve cooperative effort among residential, business and industry groups to develop acceptable alternate truck routes and patterns of use. Three areas require particular attention.

a. South Bayshore**

Truck traffic entering San Francisco from the south often turns off at the County line to travel along Third Street to the industrial areas located north of Army Street.

Third Street is the commercial center of the South Bayshore area. Some community residents believe that any attempt to rehabilitate the South Bayshore community must begin with the commercial revitalization of Third Street. In order for Third Street to become a desirable shopping area, traffic problems must be abated. The Bayview-Hunters Point Model Cities Commission has called for the rerouting of heavy truck, Candlestick Park and Naval Shipyard traffic off Third Street.

There are two basic parts to the problem of truck traffic: 1) trucks passing through the South Bayshore to industrial areas, and 2) trucks servicing industrial areas located within the South Bayshore or commercial uses along Third Street.

The South Bayshore Plan element of the Comprehensive Plan, developed closely with neighborhood residents, relies heavily on the construction of a circumferential Hunters Point roadway to provide relief from traffic problems.

Recognizing that construction of such a roadway is some years away, more immediate solutions are necessary. Such solutions may include a lowering of Third Street speed limits, development of a truck lane, and restriction of heavy truck traffic to that lane. Adequate signing must also be installed to implement this project.

In order to improve the situation for both the neighborhood and truckers, an adequate truck route linking the industrial areas north of Third Street with the industrial areas to the east of Bayshore Boulevard should be developed. This is complicated, however, by the pending construction of the extended Southeast Sewage Treatment facility. Such a truck route could in part use Quint Street and/or Shelby Street.

b. Mission District*

The Mission District faces similar problems of heavy through truck traffic on routes to nearby industrial areas, a problem compounded by the Mission's broad, straight north-south residential streets. The Mission Plan developed with the community and recently endorsed by the Planning Commission includes recommendations as to preferred truck routes and street treatments intended to divert truck traffic off residential and neighborhood commercial streets.

c. The Embarcadero*

The Embarcadero area requires, along with other road improvements, the maintenance and development of adequate truck access, serving the downtown, South of Market industrial areas and maritime piers. Facilities must also be maintained for truck parking and loading within The Embarcadero right-of-way at working piers.

J. IMPROVING CROSSTOWN AND INTRA-NEIGHBORHOOD TRANSPORTATION

1. Expanded Crosstown and Neighborhood Transit

The commencement of both BART and Muni-Metro service will mean that a much faster and more comfortable form of downtown-oriented trunkline will be available to serve residents in several corridors of the City. These new systems offer the opportunity for improving inter-district transit by re-orienting surface routes, as well as providing feeder service to the rapid transit trunklines. The development of a multi-destinational transit capability will include creation of improved crosstown lines and service which would serve to define and strengthen both shopping and residential neighborhoods.

a. Crosstown**

The origin-destination surveys in the P.O.M. study will lead to an evaluation of Muni's entire route pattern, the purpose of which should be to determine necessary changes in the network of surface transit lines. Many lines follow routes as a result of historical patterns of transit service or prior constraints of topography which may no longer be valid. There are, however, topographic and developmental patterns which were and still are important determinants of the network pattern. These determinants and the following points should be included in Muni's evaluation:

- Potential patronage in areas not served and for types of trips not now made by transit, and means of attracting that patronage.

- New lines required to improve crosstown service.
- Number of transfers required to make various types of trips and means to reduce the number of transfers.
- Route changes or new kinds of routes, such as limited stop or express service, which would improve the quality of inter-district service.

Possible new crosstown routes might include one in the vicinity of Stanyan Street. A Nineteenth Avenue bus could connect all major east-west routes in the western part of the city and might operate bi-or-tri county, with connections across the Golden Gate Bridge and/or to the Airport.

b. Shuttles*

If possible, it is better to serve neighborhoods with through routes rather than with specialized neighborhood shuttles. Through routes can operate frequently and offer faster and more direct service to many more destinations to a greater number of people. Neighborhood shuttles would be especially useful in hilly areas, providing service to community centers, business districts and to major rapid transit trunklines. Such service could also link different neighborhoods, and operate on fixed routes, by subscription, or by dial-a-ride. Neighborhood shuttles needn't necessarily be operated by Muni, although Muni does operate the #39 midibus along a fixed route serving Telegraph Hill and Coit Tower, as well as several other intraneighborhood routes. The Glen Park neighborhood has expressed particular interest in such shuttle service.

2. Improvement of Crosstown Traffic Routes*

City streets which serve resident travel between neighborhoods should be kept at a high level of maintenance. Design standards for such streets should assure compatability with adjacent land uses. Improvements might include better signing, appropriate lighting, buffering of adjacent properties with landscaping and special design treatments to individualize the route.

3. Transit to Major Trip Generators**

Many of the educational and medical institutions and government and business offices outside the downtown draw huge numbers of trips for purposes in addition to employment with significant adverse impact on the livability of adjacent residential neighborhoods. In such cases major insitutions and major office buildings located in residential areas should be allowed to expand only when there is adequate current or planned future public transit or special provision for supplementary para-transit service to serve the increased demand. The otherwise required parking

might be replaced by a cash payment to Muni to be used toward upgrading lines serving the major trip generator.

Muni and the University of California Medical Center are currently embarking upon a test program to seek funds for the extension of a crosstown line to the Medical Center. This program will be addressed in Muni's Five-Year Plan.

4. Expansion of Off-Peak Transit Use*

Improved transit efficiency can come from increased use of idle equipment during off-peak hours.

Various techniques should be explored to expand off-peak transit use. Special Saturday routes could be oriented toward neighborhood shopping districts, and special weekend and holiday routes toward recreation areas. One of the incentives for off-peak use may be special lower or free off-peak fares. Another incentive would be decreased off-peak headways on all lines, offering a more competitive trip time and reliability.

5. Provision of Better Service to Special Need Neighborhoods

a. South Bayshore*

This area requires both transit and roadway improvements to preserve neighborhood identity and character, encourage employment opportunities within the community and provide access to employment outside the area. Better transit and roadway access will also provide access for residents from other neighborhoods to jobs and recreational opportunities in the South Bayshore area.

Key to meeting many needs in this area is the development of a Hunters Point circumferential roadway, a surface roadway with limited capacity (not more than two lanes in each direction) around Hunters Point. A ramp to Interstate Route 280 on the north end of the roadway would provide access directly to the industrial complex which includes the India Basin Redevelopment Area, Piers 94 and 96 and the Hunters Point Shipyard. Connections on the southern end would provide access to Candlestick Park and the new Shoreline State Park.

There is also a need to upgrade transit service in the Third Street corridor to connect South Bayshore neighborhoods and other City neighborhoods with the industries in the Central Waterfront, with industrial-office complexes in northern San Mateo County and with the Airport. Consideration should be given to the provision of an exclusive transit right-of-way in the median of Third Street from China Basin to the City Line, and in the median of the circumferential roadway. Markedly improved transit service will also help accomplish related goals such as the upgrading of the Third Street business area and encouragement of commercial, industrial and residential development in the Central Waterfront.

b. Central Waterfront*

The area immediately south of the Bay Bridge and the area south of China Basin Channel offer inviting opportunities for San Francisco to develop new communities with mixed residential, commercial and industrial land uses. Of the major public improvements which could determine the future of these areas, quite significant would be provision of regional access, if Interstate Route 280 were connected to the Bay Bridge, and surface street connections with the rest of San Francisco, as well as transit improvements using these access routes.

The development potential of the north China Basin Area (south of the Bay Bridge) might be enhanced by the relocation of the surface Embarcadero roadway inland away from the waterfront.

K. PROVIDING FOR RESIDENTIAL PARKING

Many San Franciscans find it necessary or desirable to own automobiles. For these residents provision of adequate vehicle storage near their homes is a prerequisite to neighborhood livability. However, in some dense, older neighborhoods provision of additional parking may compound problems. The question of how much parking to provide may call for different answers for different neighborhoods. Several approaches should be explored for each neighborhood with inadequate off-street parking.

1. Community Garages*

The Planning Code provides for the creation of community garages for neighborhood resident parking. These facilities could re-use existing non-conforming use buildings in the neighborhood or be provided in nearby commercial areas.

2. Diagonal Parking*

The number of on-street parking spaces can be increased by providing diagonal or perpendicular parking, with appropriate landscaping to screen cars and prevent the appearance of a parking lot.

3. Preferential Parking***

Where limited on-street parking in residential neighborhoods is usurped by non-resident parkers for long periods of time, such as around BART stations or major institutions, residents' preference in the use of spaces is called for.

A neighborhood sticker program has now been established which provides for setting a time limit restriction on parking from which neighborhood residents would be exempt. A detailed explanation of the neighborhood sticker concept is contained in A Preferential Parking Program for San Francisco: The Neighborhood Sticker Plan (DCP, March 1976).

L. IMPROVING TRANSPORTATION TO/FROM/WITHIN NEIGHBORHOOD SHOPPING DISTRICTS

1. Improved Pedestrian and Bicycle Environment**

There are many improvements which can be made in neighborhood shopping areas by cooperative agreement of the merchants. The pedestrian environment could be upgraded by a program of cleaning, repairing and widening sidewalks, combined with improvements at bus stop locations. Benches, street trees, and kiosk-directories listing local businesses and transit information might also be appropriate improvements.

The development of improved pedestrian ways to and from neighborhood centers and shopping districts could be encouraged by both commercial and residential groups. The Mission District has expressed particular interest in such a program in the Inner Mission Neighborhood Plan. The greater use of bicycles in the neighborhoods for both convenience and recreation can also be encouraged by the provision of bicycle parking facilities.

2. Improved Parking*

Adequate parking can be important to the functioning of shopping districts, particularly in more outlying neighborhoods. The Department of Public Works in cooperation with the Parking Authority has surveyed relative parking demand in various neighborhood shopping districts. This information should be used to establish priority for expenditures of Off-Street Parking Fund revenues in conjunction with the area and site criteria developed in the Parking in San Francisco study. The provision of additional parking at neighborhood commercial centers should be coordinated with transit improvements in the area. For example, City Planning Department approval of additional parking for the Irving Street commercial area was predicated upon transit improvements on nearby Judah Street.

3. Service Vehicles Improvements**

Traffic in neighborhood commercial areas can be improved by the development of uniform truck delivery schedules. Deliveries should be confined to times when they will not conflict with peak commute or shopping hours, and large firms should be encouraged to use smaller vehicles for

deliveries within San Francisco neighborhoods. A cooperative package delivery service could be developed by neighborhood merchants as an incentive to shop in that area using transit.

Special consideration should be given to ameliorating the problems of Chinatown commercial areas, particularly on Stockton Street, where congestion from heavy service vehicle demand and inadequate off-street loading area causes significant conflict with transit service.

M. REDUCING POLLUTION AND NOISE IMPACTS ON NEIGHBORHOODS

Just as excessive through traffic should be diverted from residential areas, the selection and routing of transit vehicles must take into account residential livability and the particular topography of any one neighborhood.

1. Electric Fleet Expansion**

San Francisco is fortunate in having retained a large fleet of quiet, non-polluting vehicles whose source of energy is provided by the City-owned Hetch Hetchy hydroelectric system. The quiet nature of these vehicles makes them ideal for routes within residential areas, particularly in hilly neighborhoods. An all-new electric trolley fleet is being delivered to Muni this year, but provision should be made for system expansion. Routes which should be considered for electrification include the #55, #24, and #45 lines. The question of how much electrification should take place, and related issues such as power system capacity, vehicle storage and possible creation of a new trolley coach division to relieve the demand for a new diesel garage will be addressed in the Muni Five-Year Plan.

Origin and destination surveys completed for Muni's Planning, Operation and Marketing study should be used to re-evaluate all routes, and electrification expansion should be coordinated with overall system improvement.

2. Reducing Noise and Pollution**

The preventive maintenance program recently begun at Muni can help to reduce noise by keeping equipment in good working order. GM buses are now in the process of being fitted with equipment designed to reduce both noise and air pollution.

New equipment for Muni will be quieter, as all such equipment has been ordered with specifications designed to reduce noise levels. Care in installation and design of tracks will be important in assuring that the

new light-rail vehicles operate quietly. Traditionally, street paving materials have been poured right up to the edge of the older street rails; when the rails reverberate, the whole street acts to carry rather than diminish the sound. When the new track is laid as part of the Transit Improvement Program, some type of noise insulation is required between tracks and street pavement. Two types of insulation have been tested in the first section of Judah Street rerailing; neither has been very effective. Muni will be working to develop further noise insulation as additional portions of the system are rerailed.

3. Matching Vehicles with Topography of Neighborhoods***

Wherever possible Muni should designate certain types of vehicles for particular terrain in San Francisco, or for particular types of service. This type of vehicle specialization was anticipated in acquiring the new AMG buses and in ordering new midi-buses. However, maintenance problems and the operating inadequacy of current storage yards have thus far frustrated efforts to deploy each vehicle for the purpose to which it is best suited.

In addition to the more conventional transit vehicles, the City may need some more unique transit for certain areas. For example, special vehicles might be appropriate for shuttle service along Market Street or within the Fisherman's Wharf area.

Vehicles should be assigned according to a set of criteria including the problems of negotiating the City's rugged hills, the problem of capacity, of providing shuttle and express service, of being in scale with the City's neighborhoods, the problems of noise and exhaust pollution, of using narrow streets and making sharp turns. A very important criterion would be the relative costs of such specialization, particularly in terms of parts and other maintenance factors. The mode chosen to operate a route should have an optimum performance range that corresponds to the functional characteristics and operational demands of the route. Operating beyond the performance range of a vehicle produces diseconomies, and generally a poor level of service.

4. Continuing Vehicle Research**

San Francisco has special problems which require special transit vehicles. The City's topography brought about the invention of the cable car in 1873. The City has maintained its large electric trolley fleet to traverse hills which diesel buses could not negotiate until recently.

There is no ongoing national effort to meet urban transit vehicle needs. Extolling the virtues of economy and efficiency, the Urban Mass Transportation Administration (UMTA) has recently been shifting toward

the diesel bus as a solution for all transit situations despite the fact that there simply does not exist a diesel bus desirable for use in large numbers in congested urban areas. And after having produced specifications for a more desirable diesel bus, Transbus, UMTA has now backed away from requiring adherence to those specifications. Some manufacturers, however, are developing improved buses, featuring government-required facilities for the handicapped as well as improved maintenance features.

San Francisco has been in the forefront of the effort to create more specialized vehicles such as the new subsurface/surface rail cars and the new electric trolleys, as well as the BART vehicle and the so far prohibitively-expensive kinetic energy vehicle. San Francisco should join with other cities to continue to foster innovative vehicle research for urban transit application, using the strength of combined mass purchasing power.

IMPROVEMENT OF DOWNTOWN LIVABILITY

The quality of life within downtown relates to the needs of shoppers, visitors, workers and residents. The transportation needs of downtown may be best envisioned as those of a neighborhood, San Francisco's largest, most unique, diverse, complex and challenging neighborhood. The programs in this section deal with improving personal mobility and the general environment within downtown, means of access to downtown, and reducing and adjusting the need for travel.

N. IMPROVING PERSONAL MOBILITY AND THE PEDESTRIAN ENVIRONMENT WITHIN DOWNTOWN

Within downtown the pedestrian should have first priority in the use of street space and in the planning of all public and private improvements. The city's compact size and generally mild climate are conducive to walking; a large percentage of San Franciscans walk to work, particularly from the neighborhoods near downtown. The consistently high percentage of transit riders in the East Bay Corridor may be attributed in part to the historically convenient and congenial walk portion of their trips from transit terminals to destinations in downtown San Francisco.

1. Provision of Pedestrian Links***

San Franciscans have expressed interest in finding sheltered, mid-block, often through-building, links among their destinations in downtown. There is a need to assure the existence and retention of pedestrian links among all significant destinations in downtown San Francisco. These links should be of comfortable capacity.

Adequate pedestrian convenience should be planned in concert with new development. Two particular pedestrian links of increased significance are 1) between the Transbay Terminal site, particularly if a new terminal is developed there, and Market Street, and 2) between the Embarcadero BART station at Davis/Drumm Streets (and the California Street cable car) and The Embarcadero and the Ferry Building.

2. Development of Pedestrian Streets***

Certain streets in the downtown should be designated for pedestrian preference. Examples of such pedestrian streets already existing in downtown San Francisco include Powell Street between Market and Ellis Streets, Fulton Street between Market and Hyde Streets and between Larkin and Polk Streets, Ecker Street between Market and Mission Streets, Market Street between Spear Street and The Embarcadero, and Maiden Lane at certain times of day. The Plan for Transportation designates other specific streets for pedestrian/transit/service.

The City should experiment with the best means of closing the remainder of Powell Street between Ellis and Geary Streets to all but service and emergency vehicles. An additional pedestrian/service mall may be appropriate for portions of Grant Avenue. Other potential pedestrian-oriented streets include Fulton Street between Hyde and Larkin Streets, New Montgomery Street (depending on change in the one-way street pattern), portions of Polk Street, alleys such as Minna and Stevenson, Taylor Street from the Bay to Jefferson or Beach Streets, and portions of Jefferson Street

3. Improvement of Pedestrian Safety**

San Francisco should develop an improved program of pedestrian safety. Other California cities, including Oakland and Sacramento, have made significant improvements in limiting pedestrian accidents. Such a program would involve maintenance of accident record systems, safety legislation, enforcement, traffic engineering, traffic safety and an active public information and education program.

The approach of such a program in San Francisco should be to protect the pedestrian from vehicles rather than protecting vehicles from pedestrians. Too often the problem of dangerous intersections has resulted in the "solution" of closing the pedestrian crosswalk.

4. Improvement of Pedestrian Amenities**

Pedestrian amenities, including street furniture, are not merely surface beautification, but an integral part of a streets-for-people system. Apart from the major improvements on Market Street, most pedestrian amenities downtown in the last ten years have come through small, unrelated, often private actions: San Francisco Beautiful's street trees and litter containers; the provision of tables and chairs on Maiden Lane; different financial institutions' street landscaping and benches on California Street and in the narrow midblock streets in the financial district, and some plazas at the bases of tall buildings (notably Crocker Plaza and Crown Zellerbach Plaza). The Chamber of Commerce has completed the first two blocks of improvements on Stockton Street. There has been little coordination of these efforts under the guidelines of the Urban Design Plan, and at best these isolated improvements create oases for people in a generally non-pedestrian environment. The scale of street furniture is also important in the design of street improvements so that plant and trash boxes, such as those on Stockton Street, do not create interference with pedestrian needs.

Future downtown improvements could benefit from a coordination effort which takes into account previous experience. The San Francisco Planning and Urban Renewal Association's (SPUR) Urban Design and Open Space Committee has considered plans for widened sidewalks and other amenities in the Union Square area, and these also could be tied into Chamber of Commerce and other

private efforts to reflect a general concern for the pedestrian environment. Such a program should be coordinated by the City Planning Department.

5. Enhancement of Transit Convenience

There are certain types of shopping trips for which Muni is well-suited particularly to downtown. A significant percentage of downtown shoppers already use transit.

While San Francisco continues to hold onto a major share of regional shoppers because of its convenience and the convenient proximity of unique specialty shops, there has also been some specialization in the San Francisco market as a result of the opening of regional shopping centers on the City's southwestern edge. Following national trends, downtown may direct a growing percentage of its market specifically toward serving the City's more close-in neighborhoods, those identified in the Plan for Transportation as being in the "Central Area." These are locations from which an auto trip to downtown is probably more hassle than it's worth if there is an adequate transit alternative. Finally, it appears that another expanding market for downtown is from among those people who work (and to a much lesser extent live) downtown. For these people particularly, the potential of "downtown as a neighborhood" is great.

a. Free or Reduced Transit Fare Zone Feasibility**

The existing Muni shoppers shuttle route, a low fare off-peak system, is not successful, has lost its validity with the advent of Fastpass multi-ride capability, and should be abandoned in favor of other shopper transit incentives. Regular Muni routes already cover the downtown area and can be utilized to provide more convenient service than one or two designated shoppers shuttle routes.

The feasibility should be investigated of declaring either the downtown or a slightly larger area as a reduced fare zone during off-peak (10:00 a.m. to 3:00 p.m.) periods. Within this zone transit frequency could be increased by adding in-fill runs, that is, extra runs on regular routes terminating at the zone's borders.

Special fares would apply to that portion of a regular route within the zone. A reduced fare would be collected on inbound runs once inside the zone, while outbound vehicles might require payment upon exit. Boston currently uses a similar system when their streetcars are not in subway; Dayton, Akron, Seattle, Duluth, Birmingham and Nashville all have fare-free transit service in downtown shopping areas.

b. Shopper Validations Feasibility*

Merchants downtown, in the Embarcadero Center area and in the Northern Waterfront could actively encourage transit customers through incentives

modeled on those now afforded automobile customers. Merchants and groups such as the Chamber of Commerce should investigate the feasibility of alternatives to such current practices as valet parking and validating parking receipts. Among the projects to be considered might be 1) supplying transit tokens with purchase, or 2) merchant subsidized off-peak fastpass. At least one major bank in Denver has supplied free bus fares for customers since 1972.

c. Downtown Shuttles**

There is a need to provide fast, short-distance transit connections where they are currently lacking downtown.

Some shuttle loops connecting major trunk lines also may be appropriate in certain parts of downtown. The downtown street pattern has resulted in difficult transit links between some major destinations, notably Union Square, the financial district at Montgomery/California and the Embarcadero Center/Golden Gateway area.

The Plan for Transportation calls for the grouping of parking facilities peripheral to downtown. Convenient shuttle transit from peripheral parking facilities to downtown core would be effective in maintaining the livability of downtown.

In some cases such service need not be provided by Muni; expanded jitney service might be especially appropriate. Several criteria should be used in determining the most appropriate type of vehicle to be used:

1) It should allow easy access, through use of an open platform or extra wide doors.

2) It should have at least a partial open deck to allow for views of the urban scene, particularly for use on Market Street.

3) It should be a pollution-free vehicle, or at least, produce as little air and noise pollution as technically possible.

4) Fares should be kept at a nominal amount.

5) The scale of the vehicle should be appropriate for the streets and areas traversed.

Muni's Five-Year Plan should contain a Downtown element to explore these possibilities on a detailed and sensitive basis.

d. Central Area Increased Service Feasibility**

The density of population, employment and major destinations within the "central area" argue for intensified transit service in this area. Once certain key lines are re-electrified and the existing GM diesel buses are repaired, refurbished, and fully deployed, it may be possible to use the smaller AMG buses and the on-order midi-buses for in-fill runs on regular routes within the central area.

e. Home Delivery of Packages**

Throughout the public meetings on the City's recent Parking study, many persons expressed frustration with the need to drive in order to get their purchases home. The feeling was expressed that both neighborhood merchants and downtown merchants should band together to offer package delivery services. But it was particularly the lack of such service from many downtown stores that was key in the decision to either drive downtown rather than take transit or to drive to more distant shopping centers.

6. Development of the Core Area Automobile Control Zone

Auto traffic in central cities moves at an average speed of about 12 miles an hour, the same speed achieved by horse-drawn carriages 100 years ago.

The Core Area Automobile Control Zone is described in the Plan for Transportation. The plan identified appropriate transit and pedestrian streets and generally called for the discouragement of additional traffic and parking within that zone.

a. Parking Controls***

Parking controls in the downtown area, as proposed in the Parking in San Francisco study, should be promptly implemented. Some of the more important parking concerns downtown are: 1) no new parking should be allowed within the downtown core; 2) short-term parking may be provided by conversion of current long-term parking spaces in the downtown core; and 3) long-term parking should only be located in areas peripheral to the downtown area. These regulations will be an integral part in the improvement of the livability of downtown.

b. Additional Techniques for Restricting Excessive Auto Traffic in the Downtown Core**

The concept of auto-restrictive zones is already well-established in San Francisco. In addition to the individual pedestrian and transit malls cited elsewhere in this section, the topography provides many pockets of protected residential areas isolated from the general street grid pattern, and others have been provided through additional street and traffic design considerations throughout the city. The main road in Golden Gate Park is closed to automobile traffic on Sunday, a concept which might well be expanded. And the Golden Gate National Recreation Area's Recreational Travel Study is examining ways to provide access to GGNRA while creating an automobile restricted environment. Techniques for restricting excessive auto traffic in the downtown core should continue to be explored.

7. Preparation of a Downtown Circulation Plan***

The City Planning Department should develop a comprehensive downtown circulation plan to coordinate the various programs and projects discussed in this report as they pertain to a total circulation system for downtown. This would include one-way street patterns and any potential modifications, transit streets, pedestrian streets, the removal of the Embarcadero Freeway, parking controls, shuttle transit, service vehicle provisions and regulations, terminal plans and corridor plans. Such a circulation plan should be made to relate to land use plans for the downtown and eastern waterfront areas and to circulation and access needs south of downtown and along the waterfront (see also programs J5a, J5b).

O. IMPROVING THE WATERFRONT ENVIRONMENT

One of the primary objectives for solving the transportation problems in the Embarcadero area is to improve the environment in this critical area. A major goal is to enhance the recreational potential of the waterfront.

1. Removal of Embarcadero Freeway*

A major barrier to enjoyment of the waterfront is the Embarcadero Freeway, and it is the policy of the City that it be removed. The Clay-Washington freeway ramps are an additional barrier to park use which should be removed with the freeway. The reduction in noise which would come from removal of the double-decked structure would enhance enjoyment of both inland and waterside Embarcadero public facilities. Finally, removal of the Broadway ramp will remove some automobile through traffic from North Beach and Telegraph Hill residential and commercial areas. Land under the Broadway ramp can be returned to the tax rolls.

2. Improved Access to Ferries, Transit, Pedestrian, and Bicycle Facilities**

The changing eastern waterfront part of downtown needs a new distribution system. Many of the needed individual improvements cannot be made within the next five years, but the basic plan alternatives, as described in the report on A Transportation System for the Embarcadero Area (Department of City Planning, November 1974) should be determined immediately in order to pursue orderly and consistent individual changes. A Northern Waterfront Planning Advisory Committee to the Planning Commission has made some preliminary recommendations for some of these alternatives.

Upon removal of the elevated structure it will be possible to redesign the surface Embarcadero for pedestrian, bicycle and transit and other vehicular needs along the length of the waterfront. It will also be possible to provide cross-Embarcadero pedestrian facilities affording access to the water, waterfront recreation, and water transit.

For both recreational and commuter needs, better transit links among the Ferry Building, Fisherman's Wharf, and the rest of San Francisco are needed. These include a major Embarcadero transit line, and service to the financial district or northern waterfront. Pedestrian links from the Ferry Building to Market Street and its major transit lines, to the California Street cable car, and a link directly to the Embarcadero BART/Muni station are all essential.

P. IMPROVING TRAVEL PATTERNS IN COMMUTER CORRIDORS

San Francisco is likely to continue to grow as a major regional business employment center. The Master Plan calls for all additions to the commuter load as a result of job growth in the City to be accommodated by public transit; this concept has been reaffirmed as City policy by Board of Supervisors Resolution No. 670-75. Recent trends in the East Bay and North Bay Corridors indicate that this concept is a realistic one, and the groundwork has been laid within these two corridors to assure that the regional transit capacity will be available as the need grows. Because of the geography, the three regional commuter corridors have differing impacts on San Francisco.

With both BART and AC Transit in transbay operation, the East Bay continues to have the most favorable transit/auto modal split during the peak commute period and throughout the day. Caltrans policies in operation for several years on the Bay Bridge, favoring carpools and transit, have helped to contain the auto impact of East Bay commuters on San Francisco. To the extent that there is negative impact from East Bay commuters, that impact is contained primarily downtown and does not interfere with San Francisco's other neighborhoods. The major problems which result from the East Bay corridor can be handled by a well-designed distribution system within the downtown itself, which would include removal of the elevated Embarcadero Freeway. San Franciscans who commute to the East Bay are also well-served by the same systems, and growth in travel in both directions could be accommodated with little marginal increased impact. For these reasons there are no programs proposed specific to the East Bay Corridor, although some of the more general programs include this corridor.

The situation is different in the North Bay, or the Golden Gate Corridor. The Golden Gate Bridge, Highway and Transportation District has been quite responsive to the need for improving the transit/auto modal split. In its short history, Golden Gate Transit has gone a long way toward improving transit in this corridor and has succeeded in attracting large numbers of new transit riders. However, between the Golden Gate Bridge and downtown several San Francisco residential neighborhoods are seriously impacted by commuter traffic in autos and buses. In this sensitive corridor, San Francisco must work closely with the Bridge District and Caltrans to develop transit improvements and auto disincentives to maintain and improve the livability of San Francisco neighborhoods and downtown.

The Peninsula Corridor is the most difficult to control and improve because of the multitude of access routes into the City from the south. Also, in the past ten years it has been the most neglected transit corridor. The large and growing number of automobiles entering the City from the south has a major deleterious effect on San Francisco neighborhoods and on downtown. Several of the programs to deal with the problem are discussed in this section.

In general, there is a need for improved regional transit serving San Franciscans traveling regionally, as well as those who commute into downtown. There is a growing need for weekend, evening and recreational regional transit service, for convenience features such as common fares and free transfers, and for generally better coordination as discussed elsewhere in this report.

The following programs are concerned with the Peninsula and Golden Gate corridors individually, other improvements common to all corridors, and terminals.

1. Peninsula Corridor Improvements

The Peninsula Corridor represents the greatest number of trips into and out of the City, more than the other two corridors combined. Most of these trips are currently made by automobile. Multiple access routes from the Peninsula into the City makes control of excessive auto traffic difficult. A number of related programs should be undertaken.

a. Peninsula Transit Policy Implementation***

San Mateo and Santa Clara Counties should work to generate increased transit capability in the Peninsula Corridor. Planning for mid-range transit improvements on the Peninsula should conform to the following criteria as contained in Board of Supervisors Resolution No. 240-76:

1. Pursuant to the overriding regional interest of achieving one integrated transit system, any expansion alternative considered should be compatible with existing regional transit.

2. Peninsula transit expansion should provide uninterrupted service without necessity of transfer from the Peninsula to downtown San Francisco.

3. Any extension alternative considered should provide uninterrupted service, without necessity of transfer, between downtown San Francisco and the San Francisco International Airport.

4. Any extension alternative considered should serve San Franciscans who commute to jobs outside of San Francisco.

5. Any alternative considered should serve destinations in San Francisco outside the downtown area.

6. Route alignment and stop locations of any alternative considered should be in areas of highest population density in San Mateo County.

7. Wherever possible, intra-Peninsula transit vehicles should avoid travel on San Francisco streets, and the transit routes should follow freeways and exclusive rights-of-way.

8. Park-and-ride facilities beyond those already committed should not be developed at existing BART stations in San Francisco and Daly City, and future park-and-ride facilities should be limited in favor of the development of effective local bus service.

9. No transit system should be connected to the Daly City BART line without:

(a) those being served by Peninsula transit expansion participating equitably in the capital costs of BART incurred to date, and in the future capital costs; and
(b) those being served by Peninsula transit expansion participating in the ongoing operating deficit of BART on an equitable basis with the present BART members.

10. The financial formula of any transit developed along the Peninsula to downtown San Francisco should give credit to San Francisco for its already sizable financial commitment to regional transit.

An evaluation of the various transit alternatives in the corridor is contained in the Peninsula Transit Alternatives report (Department of City Planning, 1975).

b. Southern Pacific Upgrading***

Southern Pacific should proceed with the minor upgrading program outlined in the Metropolitan Transportation Commission's Southern Pacific (S.P.) Upgrading Study (1975) in order to retain those 7,000 commuters using S.P. and to attract those who have abandoned this commuter facility. Minor improvements include better transit access to San Mateo and Santa Clara County stations, new signing, push-pull operation, minor alterations in Muni service from the San Francisco terminal, and others. Retention and improvement of S.P. as a commuter facility is a sensible near-term goal pending development of more extensive transit service in the Peninsula Corridor, including extension of BART to the airport.

c. Connection to Transbay Terminal

Plans for construction of bus connections between the Transbay Terminal and Interstate Route 280, as recommended in the report A Transportation System for the Embarcadero Area, should proceed in concert with terminal development. Exclusive bus and carpool lanes on both freeways entering the City from the south should be instituted within the next two years, using existing lanes of those freeways.

d. Direct Service to Downtown**

The San Mateo County Transit District should develop direct corridor transit service to downtown San Francisco, utilizing bus and carpool freeway lanes in San Francisco. Eventually, San Mateo transit vehicles will have direct access to the Transbay Terminal site; in the interim San Mateo buses can use existing exit ramps in the vicinity of Transbay Terminal.

e. Candlestick Park Peripheral Parking**

Plans for a Candlestick Park parking facility have been developed by the Transportation Policy Group in cooperation with the operators of the Candlestick facilities. The facility will provide free, secure parking for auto commuters and direct to downtown transit service. This program should be implemented upon commencement of Yerba Buena Center construction so as to prevent the replacement of the extensive current temporary parking at the Yerba Buena Center site elsewhere near downtown.

2. Golden Gate Corridor Improvements

Transportation improvements in the Golden Gate Corridor should include relatively minor transit preferential street and highway improvements, incentives to ferry transit use, and continued planning and coordination of these improvements within the existing systems. The goal is to meet and surpass the modal splits currently achdeved in the East Bay Corridor. Transit solutions must improve the quality of life in San Francisco neighborhoods impacted by Golden Gate commuter traffic. A "direct-bus-only" solution would not address San Francisco policy concerns for reducing vehicle impacts, including pollution and noise. Planning should continue on other than "diesel bus" solutions. Until such time as corridor per capita spending on regional transit approaches the high San Francisco standard, San Francisco discretionary funds should not be used on projects in the corridor for which non-San Francisco funds can be used instead.

a. Ferry Transit***

The ferryboat service which will be provided upon acquisition of the three new ferries currently under construction and testing, should be supported

as a successful ferry service would be a type of transit improvement causing the least disruptive impact on San Francisco. A good bus feeder system in Marin County should be developed as well as other incentives to encourage the success of the ferry system as an alternative to either additional commuter automobiles or buses on San Francisco streets.

Incentives on the San Francisco end of the corridor should include: 1) service from the Ferry Building to the heart of the financial district north of Market Street and 2) improved pedestrian connections between Market Street and the Embarcadero BART/MUNI station and the Ferry Building. Muni can provide an important feeder function to the expanded Golden Gate Ferries with some modifications of the present service pattern so as to maximize available capacity in the reverse direction of most peak demand. As a first step, Muni is presently proposing a trial demonstration of free inter-system transfers, designed to remove the extra-fare penalty now paid by ferry users and encourage ferry use in order to reduce the impact of Marin commuters on the City.

If successful, the ferry system should be expanded (although the size and speed of additional ferryboats should be reevaluated). This program will directly benefit San Francisco neighborhood livability.

b. Preferential Bus Treatment***

Exclusive bus lanes should be expanded throughout the corridor. They should be designed and installed where practical and advantageous for the transit service. In the Lombard Street portion of the Corridor, a contra-flow lane should be seriously considered. Reserved bus lanes on Van Ness Avenue, Battery Street and Sansome Street should be similarly considered. Complete, free access and joint utilization of all Golden Gate facilities and routes in San Francisco should be assured to Muni.

As much as possible bus routes should avoid residential streets where no local service is being provided; efforts should be made to reduce the impact from Golden Gate buses on North Point Street, a residential portion of the current routes.

In accordance with planning for a new Transbay Terminal, direct routing via the Embarcadero the Terminal (without crossing through the center of the Financial District) should be developed for the majority of trips. On-street loading in downtown San Francisco should be limited; bus shelters at street areas should involve a minimum disruption of sidewalk space and pedestrian movement.

A transit lane should be developed on the Golden Gate Bridge and north as far as necessary along route 101 in Marin County and related to proposals for the future of Doyle Drive.

c. Coordination of Transit and Safety Considerations**

Proposals for ferry and bus improvements must be coordinated with carpooling programs and toll/fare policy, as well as with safety improvements on Doyle Drive. The most viable, mid-range, low-cost alternative for Doyle Drive appears to be installation of a fixed barrier in the middle of the existing right-of-way, removing the current peak period capacity flexibility and requiring a reduction in the current number of vehicles using a portion of Doyle Drive during the heart of the peak period. Transit and paratransit improvements and toll/fare policies should reflect the need to reduce the number of vehicles in the corridor at the crucial part of the peak period.

3. Improvements Common to All Corridors

a. Carpools, Vanpools, Exclusive Lanes

The single-passenger commute vehicle is a wasteful use of transportation resources. Carpools and vanpools are two immediately available alternatives; they are not, however, a substitute for good mass transit. Two, three or more persons who would not otherwise take transit should be encouraged to share the ride to work. The California Energy Conservation Act of 1975 (AB 918) cites the automobile as the single largest user of energy and states, ""The increased use of carpools by commuters would aid in lowering air pollution levels, conserving energy, and reducing urban traffic congestion."

A proper balance of cost and travel time incentives are necessary, including preferential land treatments, tolls and parking, and overall program administration. The Chamber of Commerce proposals for the organization of carpools in anticipation of a possible Muni strike earlier this year should now be directed toward an ongoing program to encourage local businesses to organize carpools and allow company cars to be taken home along assigned pool routes, as well as having larger companies charter or purchase employee buses or vans. Similar programs have been organized in other U.S. cities, including an extensive program put together by the Insurance Association of Connecticut wherein some companies subsidize carpool programs and reimburse parking fees of carpool drivers, and at least one company pays employees not to drive to work. California Assembly Bill 3267, signed July 8, 1976, permits the fully reimbursed use of city, county and state vehicles for commute transportation, and Caltrans was authorized by AB 918 to aid in establishing carpools in urban areas for public and private employees.

The Golden Gate Bridge District is encouraging vanpooling with free tolls for registered vehicles during the peak commute period Monday through Friday and has applied for a demonstration grant to purchase 50 vans. The vanpool program should be encouraged in the private sector particularly for those firms requiring the use of the same vehicle during the business day.

A recent Bay Area Council symposium on vanpooling may have interested some San Francisco Businesses in starting vanpools. Carpools and vanpools can be further encouraged through special parking rate incentives and through reserved carpool and vanpool parking. The Department of Public Works is particularly interested in the encouragement of carpools and could coordinate a carpool program for San Francisco.

The Toll Bridge Administration's and Caltrans' reservation of San Francisco-Oakland Bay Bridge toll plaza lanes for carpools and buses has won nationwide recognition for its success. All carpools now cross free. As of August 1976 approximately 1600-1800 carpool vehicles cross the Golden Gate Bridge daily encouraged by no tolls and use of the short stretch of exclusive transit lane further north in Marin County; the Bridge District should similarly favor carpools and buses at its toll plaza. The entire Golden Gate carpool program is only part of a comprehensive program for that corridor (program P2c).

Exclusive bus lanes on freeways such as those on U.S. 101 north of the Golden Gate Bridge and on U.S. 101 southbound and Interstate 280 in San Francisco, need to be expanded in terms of numbers of lanes and hours of operation.

b. Improved Connections Between Major Regional Destinations**

Regional carriers should be encouraged to provide direct service to certain major destinations - medical centers, schools and the airport - without going through downtown San Francisco. Golden Gate Transit already serves some locations along its route to downtown, but its service could be expanded to include direct service to institutions in the western part of the City. Similarly, the new San Mateo County Transit District should be encouraged to provide direct service to major destinations in the western part of San Francisco in addition to direct service to downtown. Finally, reverse commute service from San Francisco to major employment centers throughout the region needs to be expanded.

4. Centralized Terminal Facilities

a. New Regional Transit Terminal***

A central terminal would provide more efficient use of land resources, easier transfer ability, better transit identification and information, increased transit use and decreased auto dependency.

Far from becoming obsolete upon commencement of BART transbay service, the Transbay Terminal has become increasingly important as the demand for regional transit has grown. Even with BART operating at its current capacity, AC patronage has not dropped as dramatically as once anticipated, and it appears likely that AC patronage will grow once again. In addition

to AC, there is a need for terminal facility space for Golden Gate Transit and future San Mateo Transit vehicles as well.

The San Francisco Bay Area Transportation Terminal Authority was established in 1975 to develop such a terminal. The first of its tasks will be to determine the optimum size for at least the first phase of the terminal. One of the considerations will be the accomodation of Greyhound long-haul service, currently based at Seventh and Mission Streets, and Airporter service, now terminating at O'Farrell and Taylor Streets.

b. Downtown Airline Terminal**

Until such time as there is direct, wide-serving transit service to the Airport, the existence of a downtown Airport Terminal will continue to be an important incentive in encouraging transit, rather than automobile, travel to and from the airport. The current airlines terminal is due to be vacated in 1979. There has already been a serious degradation of service by the closing of ticket and baggage check-in facilities.

San Francisco should resist any further degradation of downtown airlines terminal service. A downtown terminal must be maintained beyond 1979, whether or not it is in the new regional terminal; service should be once again upgraded to include complete ticket purchasing and baggage check-in facilities.

The City needs a comprehensive approach toward the airport passenger. As an example of scale, in 1974 there were 300,000 conventioneers in San Francisco, 85 percent of whom arrived by air. A convenient, efficient transit system to the airport could be extremely beneficial to the City. In this regard, several items, such as improved transit information to the arriving air passenger, bus schedules more responsive to peak demand and improved transit signs at the airport should be considered. Also for the traveler leaving San Francisco, improvements in direct service to the airport from major hotels should be developed.

5. Adjusting Travel Patterns

a. Staggered Hours, Days and Flex-Time**

Spreading the travel peaks of commuters into and out of downtown would do a great deal to lessen the impacts of peak-hour congestion and its attendant problems, as well as improve the work environment and productivity as experience in Europe, Japan and North America has shown. Cooperation between major employers, the City and major transit operators should be able to produce a substantial flex-hour work program. This would provide personal benefits to employees, allow for greater efficiency in all aspects of the transportation system, and make for a more human environment with continuous human movement, rather than the twice-daily

lemming-like rush that present narrow commute hours produce. Another possibility might be staggered 4-day work weeks.

This program could be combined with others, such as payroll deduction and employer participation in the purchase of transit passes, and the encouragement of multiple use facilities, to provide a more pleasant and efficient downtown environment.

San Francisco City government's present "variable hours" policy (actually a flexible hours program) has been in effect in some City departments since October 1974. Overall employee response has been positive, according to the Civil Service Commission. By staggering its own work force the City can serve as a model for businesses within the City. The U.S. Government is considering its own variation of a "flexi-time" program for a three-year test period beginning in 1976.

The San Francisco Public Utilities Commission and the Golden Gate Bridge District have both done some work with private employers in downtown San Francisco to develop and expand the staggered work hours program during the next two years.

b. Pricing Mechanisms**

During the next two years, two particular demonstrations in congestion pricing should be tested.

Higher tolls for single-occupancy automobiles during peak periods should be tested on all Bay Area bridges. To insure intercounty equity, peak periods should include weekend recreational travel peaks.

Tax surcharges for all day parking should be similarly tested for a minimum of two years. Alternatives include regulating the hours of parking facility operation, through licensing, to preclude opening during the 7:00-9:00 a.m. peak in the most congested parts of downtown.

It may be also appropriate to experiment with differential Muni fares, encouraging a staggering of the peak demands and greater off-peak transit use. Transit fares in some cities are going down to encourage off-peak use.

Q. REDUCING THE NEED TO TRAVEL

Transportation planning is faced with the reality that with finite land, economic and energy resources, it is not possible to provide unlimited mobility, even after all adjustments and balances in time and mode have been made. Rather, the increasing awareness of the 1970's (and the recognition that comes in accepting the desirability of the strategy for improved livability) is that we must reduce the need to travel. This

principle is recognized in the Metropolitan Transportation Commission's Regional Transportation Plan. There are indications that some of this reduction will come about naturally without manipulation through ongoing technological improvement. A recent study conducted by CALTRANS predicted that electronic communication would begin to replace a major percentage (25 percent by the year 2000) of trips now made.

1. Incentives to Bring Work and Home Closer Together**

Specific incentives over the last thirty years, notably massive federal spending on highway construction and suburban mortgage subsidies and seemingly unlimited amounts of inexpensive fuel for private automobile transportation, acted together to create a pattern of sprawl and continually greater distances from home to work. This has led to inefficient use of time, money and energy. Inherent inequities were also created as the central cities financed their own deterioration by subsidizing this suburbanization process.

Bedroom suburbs are good neither for the central city nor for themselves. Town planning at all levels and in all areas should work towards balanced communities in which it is possible to live and work within close proximity. Other incentives can include increased taxes for automobile gasoline sales and the imposition of some form of commute tax on those San Francisco employees using city services but not otherwise paying taxes here. The recycling of formerly industrial land on the eastern waterfront of San Francisco, as discussed elsewhere in this report, can be encouraged through transportation improvements designed toward that end rather than regional expansion; total travel mileage within the region can be shortened; dependency on the private automobile lessened, and total energy demand reduced.

2. Multiple Land Use **

San Francisco should encourage greater work/live situations downtown. A combination of zoning and tax incentives could be utilized by the City to encourage residence and residential-support uses within or close to downtown.

Residences and neighborhood shopping uses are needed in downtown to redress the human-warehouse aspects of major office buildings dominating the area, to develop the mix of activities which most efficiently utilizes the transportation and other resources serving the area, and to maintain and strengthen the functions of the central area itself. Given limited land area, efforts should be directed to maintaining a residential-office balance in the greater downtown area as a whole.

3. Better Land Use Planning

Transportation planning cannot effect urban livability unless coordinated with land use planning. State land use planning is of primary

importance in considering controls on the location of primary industry and preservation of prime agricultural and other potential greenbelt lands from urban sprawl. Regional land use planning should prevent conflicting developments, such as regional shopping centers accessible primarily by freeway, which drain the city-centers, and the proliferation of bedroom tracts and remote communities, accessible primarily by automobile.